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THE SELECTION AND TRAINING OF TEACHERS OF THE HOUSEHOLD ARTS

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THE effort of this paper is to raise some questions with regard to the selection and training of teachers of household arts subjects.

Two kinds of household arts. We are beginning to see that we must distinguish rather sharply between two different kinds of household arts. There is the kind whose aim is to teach the girl to appreciate and use the best things and methods in her own home and life, whether as bachelor-maid or wife and mother. This we might well call, for want of a better name, general or non-wage earning household arts. There is a second kind whose aim is to prepare the girl for successful wage-earning in some trade or profession which have grown out of—is the result of specialization in some of the occupations and duties formerly performed by the home, such as commercial cookery, the needle trades, nursing and institutional management.

General or Non-Wage Earning Household Arts.

General or non-wage-earning household arts should be a part of the general education—the general preparation for life of every girl, and therefore should not be considered, for the purposes of this discussion, at least, as vocational training in the same sense as the more serious and thoro going preparation for the practice on a wage-earning basis of occupations which have grown out of the old home duties.

On thinking over this subject, one is struck with the strong analogies between general or non-wage-earning household arts and wage-earning household arts on the one hand, and prevocational and vocational training in the mechanic arts on the other. However strong these resemblances may be, they at least furnish a convenient way in which to raise certain questions about the training of teachers for woman's work.

The aim of prevocational training in the mechanic arts should be to give a directed experience in some of the fundamental industries, such as metal, wood, electricity and printing which will lead the pupil to appreciate and to use intelligently materials, processes and workmanship for his own needs, usually in a non-wage earning way, and prepare him to make an intelligent selection of the work he wishes to do and for which he desires to be trained in a vocational school.

The aim of general household arts training is like wise to give a diversified experience in some of the fundamental duties and occupations of the home which will

lead the pupil to appreciate—to use intelligently, materials, processes, and workmanship for her own needs in her own personal life; and to prepare her to make an intelligent selection of the occupation or profession which she wishes to follow and for which she desires to be trained in a vocational school in the household arts. In this sense, the general or non-wage earning training in the household arts may well be called prevocational training, and will be so used here.

It follows that having the same aims, the principles applicable and the experience gained in the selection and training of workers for prevocational training in the mechanic arts may have some significance for the same task in prevocational training for the household arts.

Teachers of prevocational subjects in the mechanic arts should bring to the work a number of assets or equipments, such as a personal equipment, an academic equipment, a technical equipment, an experience equipment, a teaching equipment and a social equipment. Does the teacher of prevocational training in the household arts need all these?

The personal equipment of teachers of prevocational training in the manual arts and in the household arts. His personal appearance, manner and dress should be such as will not be a handicap to him as a leader of boys. His personal qualifications must be such as to establish a presumption that he can perform the duties he undertakes. Consideration must be given to health, strength and temperament as shown by his ability to get along with people and his interest in community activities. He should show ability to deal with boys, as well as interest in them. The demands upon his personality are probably not so great as upon those of the vocational teacher of the same subject, because the older boys are much more difficult to understand and to win. How do these statements of qualifications appeal when applied to the teacher of prevocational training in the household arts? When will we, if ever, be able to select persons for training as prospective teachers of any subject with due regard for their personal fitness for the vocation?

The academic and technical equipment will be passed over in this discussion as not germane to the points I wish to make.

The experience equipment. By this I mean here the practical experience which the instructor has had in the mechanical art or arts which he is to teach. There is a law of psychology that we cannot confer in a real way upon others, experiences which we have not had ourselves. If prevocational training is to give the boy

interest, appreciation and the power to select from among the mechanical arts, they must be carried on in a real and not an imitative way. This requires the instructor to know the elementary things in the art in a real way which he can get only by participating in them himself in a real way.

In other words, he should have a minimum of commercial experience in the shop. This need not be very extensive as would be that of the teacher of the same subject for wage-earning; tho if all other things were equal, the longer and more thoro this trade experience in any mechanic arts, the better equipped the instructor would be. Is this as true of the teachers of household arts subjects?

A minimum of real experience should, in my opinion, be required of the prevocational teacher of the mechanic arts. School shops are helpful in teaching technique, but it takes the commercial shop to give atmosphere and reality to processes. This minimum of actual experience should be met either before entering the training class, during the course of the training or at its close and always before a teaching certificate is given or the candidate is placed in a position.

Do girls need this same kind of actual experience in the practical household arts in the home? Do they all have it before they enter the training class? Is it true that some girls have not? Can we rely upon the practice work in the institution to entirely supply this lack if it exists? Do these prospective teachers come from the kind of homes which will be most largely represented in the classes which they will ultimately teach? Is there a need that the practice of household arts be made more real for the pupils of the training class? Should the training school for teachers require a certain minimum of actual experience outside the school in the household arts, to be gained before, during or after the course, and before graduation and placement?

The teaching equipment for prevocational training in the mechanic and household arts. The instructor for prevocational training in the mechanic arts should not only have command of the general technique of teaching and school administration, but should be trained in the application of principles of teaching to mechanic arts problems. Especially does he need an understanding of the applications of the theories of interest and apperception and of the significance of present day ideas as to the doctrine of formal discipline. He should have a background of industrial principles, theory and practice which will help him to understand the aim and plan of his own work, and to interpret the social use of the school in which he serves and the subject which he teaches. He should be trained to make his own work serve the ends for which mechanic arts courses are established—to prepare boys for an intelligent and sympathetic appreciation of the work of the artisan and an intelligent selection of a life calling. How does this appeal as a proper teaching equipment for teachers of the household arts?

Social equipment. The teacher of prevocational training in the mechanic arts should have a grasp of the economic, social, industrial and educational history and evolu-

tion that have led up to the movement for practical education and vocational guidance in our own day. But he needs even more than this—a social insight into the problems of child labor and training and a sympathetic understanding of the adolescent wage-earner. History and theory he can get by instruction in the classroom and by directed reading. Insight and sympathetic understanding can only come thru intimate contact with the industries where children work and the homes where they live. The training course should give the first. I believe that it should also require the prospective teacher to undertake the systematic visitation and study which the second demands.

Is not this even more necessary in the teaching of the household arts where the work must be measured by the degree to which it reaches and lifts the ideals and the practice of the home? Do the teachers of household arts come from homes like those of most of their pupils? Should not the treatment of the subject in any given neighborhood and for any given child depend upon the home conditions to which it must be adapted? Is there danger that many will come to regard household arts as a subject to be taught as a science and not as a practical device for reaching and immediately affecting the practice of the individual home? Is there danger that even the practice work may be carried on under such conditions at the school as to fail to give help in meeting the situation which ignorance, poverty, indifference and vice have created in the home? Should the prospective teacher of the household arts be required to visit and study the homes of the masses with constant regard to the question of how the things found there affect the kind of training in the subject which the school, particularly the upper grades of the elementary school in the factory neighborhoods, should give? Is this matter not of sufficient importance to justify the training school in insisting upon an experience for its pupils such as would be gained by a social visitor seeking to improve the living conditions in the home?

Much excellent prevocational work in the mechanic arts and in the household arts is now being done. Much of the training in the mechanic arts is open, however, to criticism.

Some of the mechanic arts work is too narrow in scope. To offer any breadth in appreciation or any range in selection, the practical experiences should be drawn from all the fundamental materials and processes with which the school can deal successfully. The list of activities which can be given includes at least metal, wood, electricity, printing, bookbinding, pottery and textiles, yet many prevocational schools offer only metal or wood or at the best both.

Are there not many so-called courses on household arts which give only cooking, or at the best only a little needlework in addition? Does not the pitifully small time allowed for the work often prevent more being done, as in the case of the mechanic arts? Has there not been a tendency in our normal schools to limit the training in household arts too much to these two subjects, and consequently to send teachers to the field not only unprepared to deal with such other topics as sanitation, decoration, hygiene and care of the sick, but also

without any vision as to their importance for the child of the masses? The teacher in the small school cannot specialize but must unaided, teach all the subjects in home-making which are given at all just as the teacher of mechanic arts in the prevocational school for the small city and town must in the future be equipped to teach as many lines as conditions permit. Is there not too much of a tendency to think of the different branches of both the mechanic arts and household arts as distinct courses to be maintained at all hazards rather than as a collection of activities from all of which, material should be drawn in order to give a proper start in home-making and in the selection of a calling?

Should not undergraduate schools for training teachers in the household arts require all their teachers to take a minimum amount of instruction in all the important branches of the subject before granting a certificate?

The Manual Arts work is in some quarters very much over-refined. A year is often spent in making, finishing and polishing to the nth degree a table for the annual exhibition of the school. The emphasis is laid upon inculcating ideas of workmanship far beyond the pupil's working capacity rather than on the practice in making things more as the world makes them in order to give the encouragement which comes from success and the skill that comes from successful practice. Taste in workmanship can rise no higher than one's ability to execute and the truest art is adaptability to use.

Is there over-refinement in some of the household arts training? Are girls surrounded by such ideal conditions in the work in the school that they are unable to carry over into their own homes the benefit of the instruction and the practice? Are our laboratory equipments arranged with due regard to the conditions under which the girl must try the same projects at home which were so successfully carried out in the class? Is there danger that the idealization of the process at the school may send the girl home not only unable, but unwilling, in her heightened dissatisfaction to attempt its repetition? Wherever this occurs, is the course of training not open to the criticism that it has failed to adjust the pupil with the new asset, to the environment in which it is to be used? How far is this trouble, when it exists, due to the over-emphasis of the scientific and artistic aspects of the subject, and how far to a failure to understand that the real purpose of the work is to prepare the girl to make a better home out of the one she now has? Will this difficulty ever be remedied until all those who give instruction in them have been so taught in the training school as to realize that the largest purpose of each is civic and social betterment?

Much of the work in the manual arts lacks reality. The use of the exercise method trains the pupil in logical sequence of learning, but also into ways of doing things different from that of the trade and gives them a false idea of trade organization and processes. The elements of speed and time are largely neglected. Pupils often "dawdle" thru a whole year on one article which they have made for their own use. Even the old handicrafts which have practically ceased to be of any commercial

importance did not make things as does the boy trained by the exercise method on the imitation basis.

Is the household arts training in the elementary school and in the high school open to this criticism? Is their work done under conditions which are real to the homes of the girl? Can girls learn much about the needle trade by giving a whole year to the making of a dress for themselves? Do girls "dawdle" in their cooking and in their sewing? Does the course ever get beyond the exercise method, to the home or trade method of doing the work? Are the scientific and artistic aspects of the course stressed to the neglect of the practice in the way and on the things which the pupils can use in their own homes? Is provision made for home practice and are the results checked so as to measure the efficiency of the instruction at the school? Is there any other remedy for the lack of reality than a more practical teacher? Is there any other way of getting a more practical teacher than by requiring from her at the training school, both approved actual experience outside the school and directed experience in commercial shops within?

In much of the manual training the technical side is over-emphasized far beyond the ability or the experience of the pupil, and at the expense of practice in doing things he is able to accomplish successfully. The logical sequence of steps in the use of tools is insisted upon even tho the world's work is done in a different way. The shop hour is occupied largely with discussions of correct form and method to the neglect of practice and accomplishment. Use and utility are sacrificed to theory and technique.

Are these things true of our training of girls in the non-wage-earning household arts? Is there too much emphasis laid upon the laboratory and the chemical formula at the expense of proficiency in the work of the home? Do our girls receive a great mass of instruction in dietetics which for want of practice in its application, they are unable to use successfully in the home? Are our courses in cooking laboratory exercises in the chemistry of food rather than training in the work of home-making? Is not the highest art in any field of work that of adaptation to use? Is there danger that in our commendable desire to give the teachers of household arts subjects a mastery of the science lying back of each art, we will pin our faith too much to the laboratory and the dietician and fail to require the kind of experience and training which will fit them to teach home-making in a sympathetic and effective way?

Wage-Earning Household Arts.

Space will not permit an extended discussion of the preparation of teachers to give instruction for the various vocations formerly carried on in the home which have now become commercialized, such as millinery, dress-making, machine operating, cooking, nursery, care of children and household management. I do want to point out here, however, the even greater need for real experience as an indispensable part of the preparation of the teacher than for the instructor in the non-wage-earning household arts.

The industrial schools for boys require the teacher of shop subjects to have actual trade experience in the work in which he gives instruction. The teacher of

machineshop practice must show that he has himself been a successful worker in a machineshop. Admittedly the teacher drawn from the trades is too often poorly prepared in other respects, but his asset of having been an actual worker in the occupation for which he is to prepare others is regarded as fundamental. At the same time, these industrial schools are struggling to find ways by which they may reach the shop man and train him in the art of teaching.

If trade experience is a requisite for the teacher of boys' and men's occupations, should it not be the case of the occupations for girls and women? Should the wage-earning household arts work be any exception? I am aware that in the girls' trade schools, where dress-making, millinery and machine operation are taught, there exists today a real and necessary demand for the teaching of the elementary or basic needlework for all these trades which can probably be given as well or better by the woman who has been technically trained and who usually does not have any trade experience.

The need for this service will disappear as the upper grades of the elementary schools give the instruction in sewing they should. I have found no director of a girls' trade or industrial school but who feels that even in the case of this teacher, actual trade experience should have greatly increased her efficiency.

The boys' schools are having great difficulty in getting shopmen who are good instructors. Experiments are under way to train some of these for teaching. Already certain things seem sure. The normal school cannot, thru shops under its roof, prepare teachers of trade subjects. How much real trade work these students should have in addition is the debatable question. The technical institute and the engineering school cannot prepare the trade teacher in their shops. Here again the question is unsettled as to how much real commercial practice they should have in the trade. With the present salaries offered to teachers, we need not expect very many students of these institutions to be attracted toward positions in the trade schools. Nor can we expect the

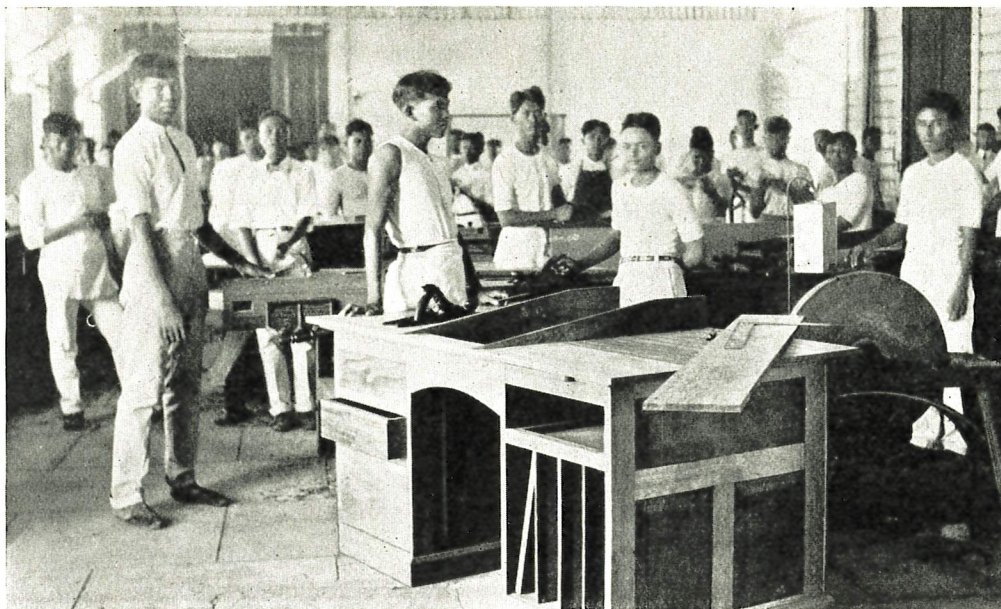
mechanic to forego wage-earning for two or three years while he attends a training school fitting him for a position which probably will pay less at the outset, if not permanently, than he earns at his trade. Here and there small groups of trade-trained men are being gathered into day schools for training, but there is abundant evidence that this plan will not prove any other than a negligible source of supply for teachers. Four lines of experiment suggest themselves: The first described above, would select the man who already knows his trade for training as a teacher thru the day school of the normal school or college. The second would require the school trained man to secure trade experience before being certified as a teacher of trade work. Another would arrange a part-time or co-operative plan whereby the trade-worker would spend alternate periods in the shop and in the training school. The last would reach and train the trade-worker for teaching thru evening class instruction, giving him an elementary preparation as a teacher, leaving him to be trained further in service. The latter plan gives to my mind the largest promise.

How do these statements appear when applied to the teacher of trade subjects in girls' schools? Can we rely upon the ordinary school shop alone as a means of giving inexperienced girls and women adequate trade experience? Do we not need to have our school shops approach more and more the demands of trade? Should not those desiring to be certificated as teachers of trade subjects, be required to secure at least a minimum amount of commercial experience before the certificate is issued? Can we rely for our teachers of trade subjects today upon the hope of attracting the trade-woman to our full courses? Should not an effort be made to secure them thru part-time and co-operative classes? Are evening classes for women having shop experience the best means of securing an adequate supply of properly trained teachers of shop work? Should not some effort be made to try this plan in some city in which the conditions for securing promising women for training as teachers of trades in girls' schools are favorable?

E DUCATION should never lead to discouragement or contempt for work, but should dignify labor and increase the ability to do it well.

—Alfred Povlsen.

BRADY
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A CLASS IN CABINETMAKING IN THE CEBU TRADE SCHOOL.

INDUSTRIAL EDUCATION IN THE PHILIPPINES

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HERE is probably no nation or state in the world today, which has in practical operation a system of industrial instruction more consistent than that of the Philippines in its sequence thru the various grades, or more closely adapted to the material conditions and requirements of the country.

This is a rather strong statement, but when considered in the light of the following reasons, is not unbelievable. Other countries, with educational systems long established on orthodox lines, encounter almost insurmountable difficulties in the reorganizing of these systems on a practical basis. There is indeed much talk nowadays in the United States about industrial education. "Industrial Education" has become a popular catchword, and theoretically at least, everyone believes in what that expression is supposed to represent. State legislatures go thru the form of enacting laws establishing such instructions, and school boards and superintendents are advocating industrial teaching, and doubtless believe that they are actually doing something in the way of promoting it. As a matter of fact, superintendents or teachers that have really worked out a system of instruction to meet the needs of their community are very few, if any can be said to exist at all. In some places effective work along this line has been accomplished; in a great many other places school authorities have done more with a view to the satisfying of popular clamor than to the inaugurating of any systematic plan for the adaptation of school life to the social and industrial needs of the community.

In the Philippines, the administration of the Bureau of Education is hampered by no embarrassing precedents; it has ample funds with which to execute its plans; and, best of all, it has in a most gratifying measure the moral support of both Americans and

Filipinos in its policy of building up a system of instruction which will promote the industrial efficiency and material well-being of the population. Such another opportunity probably never existed anywhere, and to the credit of the Bureau be it written, never before was an opportunity used to greater advantage.

Few people engaged in Educational work in the United States are familiar with the size and character of the educational system in the Philippines. This system includes over 4,000 schools, of which 36 are trade and manual training schools, and over 200 of which have manual training shops. In addition to these, the Philippines boast 38 high schools, a normal school, a school of commerce, a school for deaf and blind, and a university which includes seven colleges. About 700 American, and 8,000 Filipino teachers are employed, giving instruction to about 500,000 school pupils.* Of this number, about 400,000 or 80% of all these school pupils are engaged in some kind of industrial work.

The subjects taught which have an industrial bearing are as interesting and diversified as the industrial life of the natives themselves.

School gardening is taught in every primary school. In many provinces the daily food supply has been materially increased and improved thru this agency. The requirement of the course of study has been met for many years by most school divisions. Agricultural work on a larger scale has also been undertaken in many cases, the work meeting with success wherever introduced.

Every girl receives instruction in plain sewing and cooking. In certain divisions, embroidery and lace making have been undertaken in the primary schools with marked success, providing thereby many girls with the means of earning a good livelihood. These industries

*NOTE—From Statistics for School Year 1910-11.



Faculty of the Cebu Trade School, 1913-14.

are susceptible of extensive development. Because of their great natural aptitude for this sort of work, the Filipino women are considered among the most skillful workers in the world in these arts, and not excelled, according to experts, by even the French or Swiss. As practiced by the natives however, without system, under crude conditions, and with no attention to modern demands, this work has not given to the Filipinos the returns it should. It needed to be systematized; the girls instructed with reference to modern styles and trained to use suitable materials. The schools in Manila have done valuable work along this line, and also in establishing school kitchens and lunch counters where wholesome and nutritious foods are daily prepared for sale to the students, all service in this connection being rendered by the pupils themselves.

In hundreds of schools, instruction is provided in the making of hats from bamboo and other native fibers. Most primary schools have given much attention to the weaving of baskets, mats, fans and household conveniences. "Subitan," which is probably the most valuable fiber in the development of this Philippine industry, has been given general distribution by the Bureau. It is in just this way, by giving to all sections of the Islands the opportunity of benefiting by the use of material heretofore enjoyed by only a few sections, that the Bureau is doing its greatest educational work.

Instruction in loom weaving is offered in many schools, the looms of improved model being turned out by the trade schools for this purpose. Notable results have been obtained in this industry in the mountain districts and in the Ilocano country, on the north-western coast of Luzon.

Pottery work has been undertaken in a simple way in various localities, but with a view to larger and more valuable results; kilns are continually being constructed in connection with trade schools. In Santa Cruz, Laguna, gratifying results in this line have already been obtained.

The 36 manual training and trade schools mentioned in the foregoing, are equipped with adequate sets of woodworking tools and machinery, and quite a number have been equipped with machinshop and forging outfits.

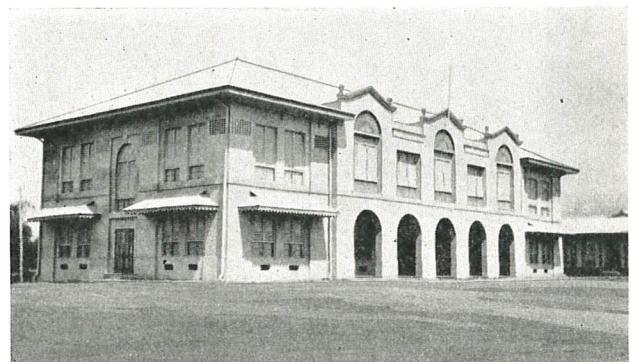
Woodworking is taught in as low as the fourth-year grade, and is continued into the high and trade schools.

On account of my having been directly connected with that branch of the service, I wish to enlarge on the subject of trade schools, inviting attention to some of their unique and interesting characteristics. A close distinction is drawn between the manual training and the trade school. The manual training schools were originally organized, as similar institutions in the United States have been, for the effect of the training thus provided, on the mind and character of the boy; its aims were rather cultural than practical. The Bureau of Education soon realized however, that the trade school, which is established mainly for the purpose of developing skilled workmen, is the type of institution needed there rather than the manual training school. As rapidly as possible, therefore, the manual training schools and shops are being reorganized and established as practical institutions upon a business basis. The trade schools at Manila, Iliolo, and Cebu are typical of what the Bureau is accomplishing in this line. These schools are to a large extent self-supporting institutions, where students earn enough to support themselves while securing their training by manufacturing articles of commercial value. It is not uncommon to see advanced pupils constructing bungalows under contract valued at 3,000 pesos and over.

I know that these statements will invite a storm of protest. "Exaggeration," "Impracticable," "Governmental exploitation of child labor" will probably be some of the milder criticisms. But, however, they may apply in connection with similar institutions in the United States, these criticisms are not justified as applied to the Philippines.

Let us take the Cebu Trade School as an example. Located in a city of almost 65,000 population, it is the only place in town equipped with modern woodworking machinery, and the only place where furniture of European and American design is manufactured. Also, there is only one other place in this city where lumber can be dressed by power, and therefore, the planing and sawing of lumber for building purposes alone is a source of considerable income to the school.

The school day, ostensibly a six hour one, is yet rarely of less than eight hours' duration, with four hours on Saturday. Six hours of every school day is devoted to the regular course of study, prescribed by the central office in Manila, and divided into suitable periods of academic work in the classrooms, and practical work in the shops. The two extra hours daily and the four hours



The Cebu High School, Adjoining the Trade School.

Saturday are devoted to shopwork exclusively, for which the pupils are paid. The rate of pay averages between ten and fifteen centavos (5 and 7½ cents) an hour. "Not very munificent remuneration," you will say, but in a country where 50 centavos a day is considered good wages, you can readily see that the trade school is not underpaying its pupils. The ages of the pupils in the trade schools range from 14 to 19 years. These facts should readily dispose of the "governmental exploitation of child labor" criticism.

As was mentioned before, the trade schools are organized on a business basis. The principal of the trade school is placed under bond, and is given complete charge of all the funds and property. A clerk is employed by the municipality to keep the records and to act as secretary to the principal. At yearly intervals the books are audited by the provincial auditor, inventory of stock and equipment taken, accounts balanced and everything made ready for another year's work.

Let me give an example of a typical trade school transaction. Mr. B. of Cebu, P. I., wishes to purchase a dining table. He has the choice of having it made in the trade school, buying it from one of the large mail order houses in the States, or having some native carpenter construct a rather crude altho substantial affair. Having selected the trade school, he makes his wishes known at the office of the principal, where an estimate of the probable cost and the time necessary for the completion of table is furnished, and the order given. The clerk then makes out a job card, on which he records the name of the purchaser, a description of the job, and date when ordered.

The job card is now given to the instructor of draughting and a drawing of the table is made and submitted to the principal, and if necessary, to the purchaser, for approval. The drawing, together with the job card, is then assigned to an instructor in one of the shops. This instructor discusses the job with his class, and assigns certain boys to do the work. One of these boys is created a foreman of this particular job and is given the job card, of which he is required to take charge until the job is completed. Being appointed foreman is no empty honor, as the foremanship is always accompanied with an increase in the rate of pay, and is invariably awarded to the most meritorious. A more effective incentive has yet to be devised. The foreman records on the job card the names of the boys and the time spent by each on the job, draws the necessary



The Cebu Track Team.

supplies from the clerk who charges them against the job, and the work thus goes merrily on until done. After the job is completed the purchaser is notified, calls at his convenience, pays for the job, a receipt for the money is given him, the proper entries are made by the clerk, the job card is filed and the table delivered. This completes the transaction which, with little variation is illustrative of most of the work done at the trade schools.

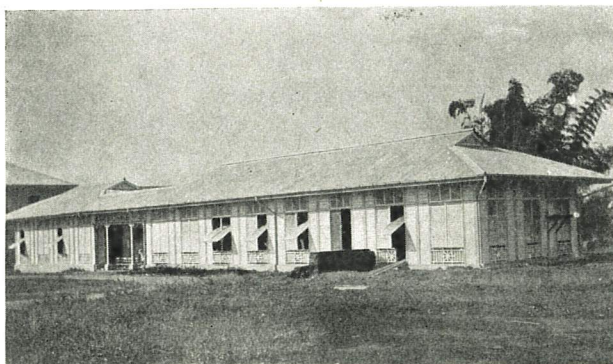
The pupils of the trade schools are not self-governing, as some teachers claim is the case in their schools. The success of the trade schools in the Philippines is the result of strong organization, firm discipline and above all, unceasing watchfulness on the part of the teachers. Too much reliance on the boys themselves would prove disastrous, as experience has shown that the best and oldest pupils prove unreliable if left to themselves. Should a teacher expect more from his pupils than the manufacturer can get from his matured employees?

I do not desire that anyone shall infer from the foregoing that the industrial work of the schools is conducted at the expense of the necessary academic work. Altho it is true that instruction along purely academic lines is now considered as being of relatively less importance than originally, still the work of giving the natives a primary English education continues to be the chief function of the Bureau.

The requirements of the regular academic course of study, with appropriate revisions suggested by the needs of the various communities, are strongly insisted upon. The Bureau realizes the temptation which industrial education offers to those engaged in it to neglect the fundamental academic education so essential to the success of any industry and to the progress of a nation.

What were the means employed by the Bureau of Education to enable it to establish so successful a system of industrial education?

In 1909, a department was established in the General Office under the supervision of the Second Assistant Director of Education for the purpose of organizing, promoting and supervising industrial training in the Philippine schools. The following statement was at that time issued, advising the field as to the means that would be employed to promote the ends of this department:



One of the Buildings of the Cebu Trade School.

1. Detailed information on what is now being done in the schools thruout the Islands will be gathered in the General Office from all Divisions. Notably successful industrial work of whatsoever character will be described in reports and illustrated pamphlets, printed and distributed for the information and inspiration of the entire field.

2. The General Office will accumulate and promulgate data as to the sources, costs and uses of materials serviceable in industrial classes, and will also fur-

To become familiar with what has been done in each special line, to compile information and instruction with respect to the industrial processes involved, and to pass this information on to every school division in such a manner as to secure prompt and effective adoption of the accepted standards thruout the field, was the chief problem of the central office. To this end the following means were employed:

1. Official circulars were prepared and sent out to superintendents and teachers for their information and



FURNITURE DESIGNED, MADE AND SOLD AT THE CEBU TRADE SCHOOL.

nish information as to the marketability of school products.

3. A corps of industrial supervisors and inspectors will visit the schools of all provinces for the purpose of instructing, advising and assisting teachers. *These supervisors will be recruited from among division superintendents and teachers who have applied themselves most successfully to the problems of industrial instruction.*

4. A consistent and determined effort will be made to develop efficient industrial teachers. Something has been done already in this line in the Trade School and Normal School in Manila, and in the provinces of Pangasinan, Iloilo, Tarlac, Pampanga and Neuva Ecija. Hereafter the Insular schools (distinct from the Provincial and Municipal schools, will be dedicated more exclusively to the training of special teachers, and furthermore, each school division will be expected to develop by its own effort a corps of teachers for industrial work.

5. *Teachers and supervisors attaining marked proficiency in industrial lines will be considered eligible for special recognition in points of favorable assignment and compensation.*

Such a statement as the above, issued by a Bureau with ample resources back of it, could not fail to secure gratifying results. Certain teachers and schools achieved marked success in special lines of work; Manila set a high standard in embroidery; Albay made baskets which are unsurpassed; Union developed a system of school and home gardening thruout the province; Iloilo perfected a commercial accounting system in the trade school; Philippine School of Arts and Trades of Manila produced articles of furniture superior in finish to anything manufactured by the commercial concerns of that city.

guidance. A considerable number of publications have been issued which have to do with specific phases of industrial education.

2. Insular industrial inspectors and supervisors have been designated, whose business it is to visit the various provinces and municipalities under the direction of the main office and thru consultation with division superintendents and teachers assist them in bringing their work up to the prescribed standards. Each inspector is a specialist in, and concerns himself with only one particular kind of work. In many provinces provincial industrial supervisors have been appointed as assistants to division superintendents in extending primary industrial work thruout their respective divisions and bringing its various lines up to approved standards.

3. Industrial exhibitions have been held in Manila, of which the one held in 1911 is noteworthy.

At this exhibition 16,000 square feet of floor space was occupied; 10,000 articles were exhibited from every province in the Islands and sales and orders amounted to over 11,000 pesos. Division superintendents and industrial teachers attending this exhibit were enabled to compare the product of their own schools with that of others, and so acquire information on the basis of which they might direct their work more effectively in the future. Conferences of industrial work and supervising teachers have been held in connection with these exhibits and at other times.

The courses of the Normal School and Trade School are so arranged that the regular students of these institutions are definitely prepared to go out to the field upon completion of their work and serve the Bureau in a very effective way in the promotion of the industrial program.

I have endeavored to show in the foregoing, as briefly as possible, what is being done in the Philippines in the line of Industrial Education. If I have put more emphasis on the practical results obtained than upon the effect of the instruction upon the social and moral life of the Filipino, it is not because evidence of the beneficial influence of the activities of the Bureau in this respect is lacking. For 300 years under the influence of Spain, the Filipino had acquired the Spanish idea that to be a gentleman one must not work. By example, the American personnel of the Bureau soon dispelled that idea. It was a matter of great surprise to the Filipino in the beginning to see a "maestro" who was supposed to sit at a desk and look dignified, roll up his sleeves and dig the ground or build his own desk. No less of a surprise to them was the sight of an American with all the other ear-marks of a gentleman, carrying his own valise from the landing to the schoolhouse! But all this is changed now, thanks to the influence of the Bureau of Education.

Baseball, introduced by soldiers in the early days of the American occupation, but more recently fostered by the schools, has spread thruout the entire Archipelago, reaching the most isolated barrios. Interprovincial

meets arranged by the Bureau bring together not only the competing teams, but attract along with them, their friends old and young, from all nearby villages and from adjacent provinces. As the appeal of baseball is becoming stronger, the call of the cockpit is becoming weaker, and the latter institution tho venerable with age, is giving way to the younger and cleaner sport.

By the fostering of baseball the Bureau of Education is destroying the cockpit, a thing which the legislators have been unable to accomplish; and by giving the natives industrial education, the disinclination towards work so natural in a tropical country is gradually but surely being eliminated. The new spirit of industrial interest has swept in upon the boys and girls with a force that is almost revolutionary, and with it come new standards, new ideals of conduct, and what is more important, new ideals of character.

When the 8,000,000 population of the Philippine Islands reaches the state of civilization that would warrant their being given their independence (and the children of the present school generation may see the day)—then will it be known that Industrial Education, more so than any other agency, is entitled to the greatest credit for their advancement.



SILVERWARE SHOWN AT CRAFTSMAN'S EXHIBITION, CHICAGO.

Boat Building in the Manual Training Department

Nicholas Majerus, Franklin High School, Seattle, Wash.



WITH the city of Seattle located as it is with Lake Washington on one side, Puget Sound on the other, and with Lake Union intervening, and a canal adjoining the three bodies of water, giving the city a shore line of 63 miles, it seems only natural that a boy should wish to own a launch.

Oscar Seeger, a pupil in the manual training class, ranking as a B. Junior wanted to own a launch that would carry at least eight passengers and run at a speed of twelve miles per hour. The serious thing, however, was the cost of such a boat. After making inquiries of the various boat dealers in the city and comparing the market price of a launch with the cost of making it himself, he learned that he could save about one-half the cost, not counting his time for building. That was sufficient inducement to build the launch in the manual training department at the high school.

To build a boat twenty feet long requires a good deal of room. However, arrangements were made to construct it right in the classroom.

The boat is of the round bottom type, twenty feet long and four and one-third feet wide. It carries eight passengers very conveniently and is driven by a ten horsepower engine which develops a speed of twelve miles per hour. The cost of the boat excluding the value of the student's time for building, was two hundred dollars (\$200.00). The time needed in doing the work was about three hundred hours. This was not a knock down boat which would have required only the assembling of parts, but instead it was planed and all the parts cut, bent and fastened in their proper places by the student.

In a very brief way with the assistance of the Figures 1, 2, 3, 4, 5, 6, for you to refer to, I shall explain the method of construction. The first problem was to get a design that would be satisfactory for a boat as described above. After consulting various boat builders and examining various boats and consulting magazines and books on boat building, the plan as shown in the sketches was adopted.

In the actual construction the keel received first consideration. The keel, representing the back-bone of the boat, is the principal timber and forms the foundation upon which all the rest of the structure is built. In small boats this can be made of one piece of wood, but in this particular boat under consideration, the keel was made of two pieces of well seasoned white oak; to get an idea of the shape and construction of the keel I refer you to Fig. 3.

A hackmatack knee makes a very good stem, but because that knee was not available the stem was built up of two pieces of white oak as shown in Fig. 3.

The stern is made up of one select piece of three-fourths inch board fastened to the keel and ribs. The keelson is run along the top of the keel, thus completing the back-bone of the boat.

Next, nine molds were made after a full sized pat-

tern and fastened in their respective places with ribbands.

Then came the ribs. The ribs were made of air dried white oak taken from the butt of the tree and were thirteen-sixteenths of an inch square. In making the selection further care was taken to choose only perfectly straight grained wood. They were then placed in a steaming box for a few hours and while hot they were easily bent around forms, with the rings of growth flatwise not edgewise.

Just a word with reference to the making of the forms just spoken of. The desired shape that a rib should take on was marked off on the floor with a chalk line. Then small blocks were nailed to the floor at short intervals with a distance of thirteen-sixteenths apart the other way, to admit the ribs for the bending process. Because of the fact that the different ribs had to take on different shapes the blocks had to be renailed occasionally to conform to a new chalk line.

It may be worth while to tell what the steaming apparatus consisted of: Four boards three-fourths of an inch thick, eight inches wide and the length of the ribs were nailed together in the form of a box. One end of this box was closed up while the other contained a gate to admit the ribs. A hole was bored in the side to admit a steam pipe and the steam box was complete. The steam used was the exhaust steam from our heating plant. A tea kettle on a gas plate attached to your gas supply will furnish steam enough to do the business. Superheated steam will not give the best results. The low pressure kind is better for the purpose since it is as much the moisture as it is the heat that does the work.

When a rib had cooled off after being in the form for a short time it was put into its proper place in the boat and fastened with rivets to the keel and ribbands.

After the ribs for the body of the boat were in place the ribs for the decking were cut and their ends fastened to the ends of the lower ribs.

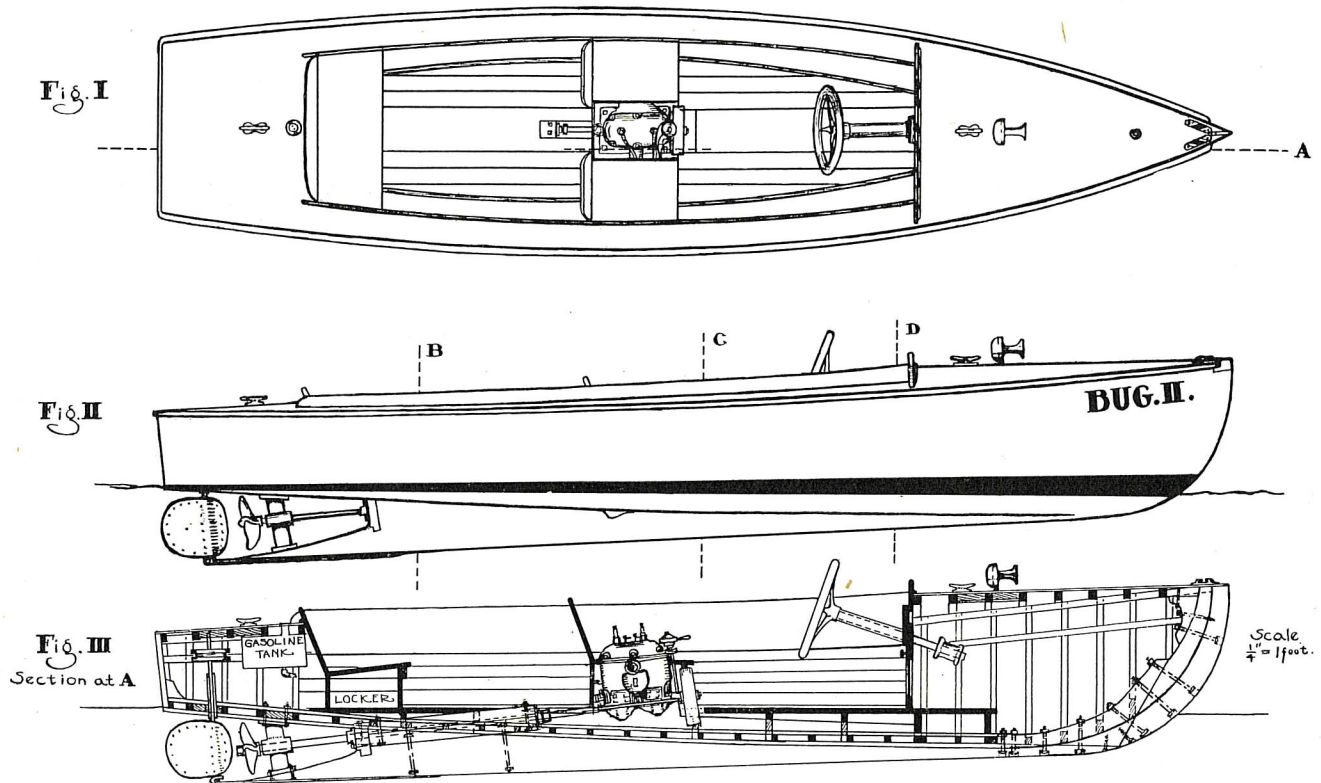
Next the frame work was turned upside down and the planking put on. Spruce being less expensive than cedar and very satisfactory, it was selected for the purpose. The boards are one-half inch thick, three and one-half inches wide and equal in length to that of the boat. First the garboard was fastened on with two rivets in each rib. All outer edges on the planks are beveled to assist in calking. No plank should be put on that fits close on the outside and open on the inside. The calking in such a seam will not wedge itself, it being driven from the outside. I shall speak of this more fully later:

On account of the curvature of the boat it was necessary to devise a particular way for fitting the planks. It was done in this way: after the first plank (garboard) was put on, a space for board number two was left and board number three with parallel sides was put on. Next board number two was laid over the opening between board number one and board number

three, and board number two was marked from the inside of the boat, and then cut to the line. In that way a good fit was obtained. Next number five was put on and an opening for number four was left, and a fit for number four was obtained in the same manner as for number two, etc. After planking part of one side the other side received similar attention, and thus both sides were planked at the same time, so to speak. Each plank received two rivets in each rib. In order to avoid following the same grain in the ribs the rivets were not set in a straight line down the side of the boat.

the life of a motor boat depend on the way the engine bed is fastened and leveled up, but the wear and tear of the machinery and efficiency of the propeller are greatly affected.

The bed should be as long as possible in order that the strain of the engine may be carried as far forward and as far aft as is possible. The keel is the foundation upon which it is to be built. The actual form of the engine bed is governed largely by the shape of the engine base and fly wheel. Since it is not my object to advertise any particular type of engine, I will simply say that



PLANS FOR MOTOR BOAT BUILT IN FRANKLIN HIGH SCHOOL SHOP, SEATTLE.

When it happens to become necessary to piece planking do not try to end the plank in the same frame and try to nail both ends to one frame. Instead, the joint should come between frames and be riveted to a but block, fitted between the frames.

After the planking was in place a baton was used to locate the high spots on the surface, and after these were removed with a fine set smoothing iron the holes left by the rivets were filled with putty. After this was done the seams were opened with a calking iron. Next a small roll of cotton was driven into the seams and this was painted over with a thin coat of white lead paint. This holds the cotton in place and also the putty which is now inserted and which clings better to it. This process is spoken of as calking.

The boat was now turned right side up and the decking put on. The deck was covered with one-fourth inch spruce, and over the spruce canvas was stretched. To make the deck waterproof the canvas was given several coats of white deck enamel. The inside planking is made of one-fourth inch fir.

The engine bed is of the most important consideration in the construction of a motor boat. Not only does

for some types of engines it is a very awkward job to build a proper engine bed for the reason that there is little or no room between fly wheel and base of the engine to get a good sized timber forward under the engine. The idea in all of them is to build a bed under the engine that will spread the vibration over a large area of the boat.

Next in order came the lining up of the engine. The hole thru the dead wood was made by grooving two pieces and the two pieces were bolted so that the grooves formed the hole for the propeller shaft. With this log fastened in place as shown in Fig. 3 and Fig. 6 a chalk line was stretched thru this hole by first nailing across the lower half of each end of the hole a little piece of wood whose upper edge is straight, and in the center of which coinciding with the center line of the shaft a light saw cut was made. Across these notches the line was stretched so that it just touched these saw cuts. The chalk line gives the angle for fitting the engine bed, its height above or below the line being determined by the distance the engine base is above or below the center line of the shaft.

A job that requires great care is the proper fitting of the stuffing box and stern bearing in the dead wood so that the shaft will not bind. Run the shaft thru the stern-bearing, which is the outer one, with the stuffing box on the inside of the boat so in case of a leak the box can be ably gotten at with a wrench to tighten her up. To fit this stern bearing a strut was made after a pattern, and cast and placed in line with the shaft causing the propeller to work close to the strut. (Fig. 2.) The stuffing box was bolted to the inner face of the dead wood. The perfect alignment of the propeller-shaft is necessary for successful use.

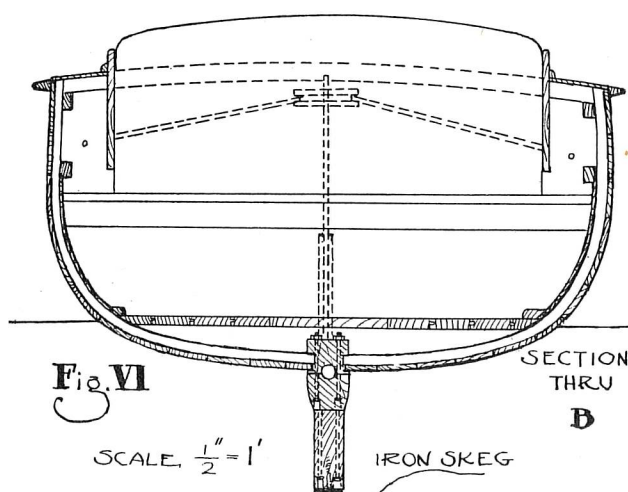
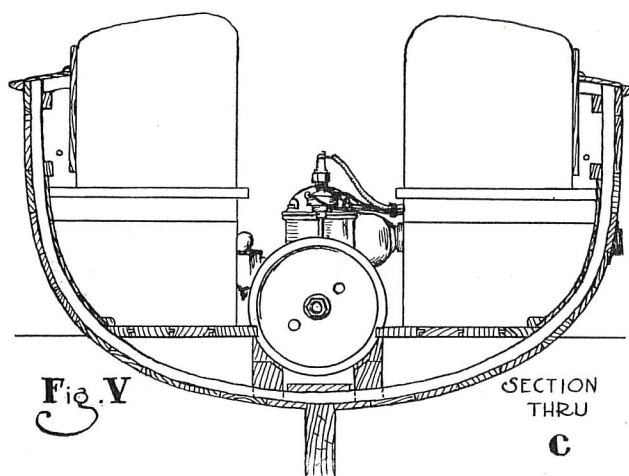
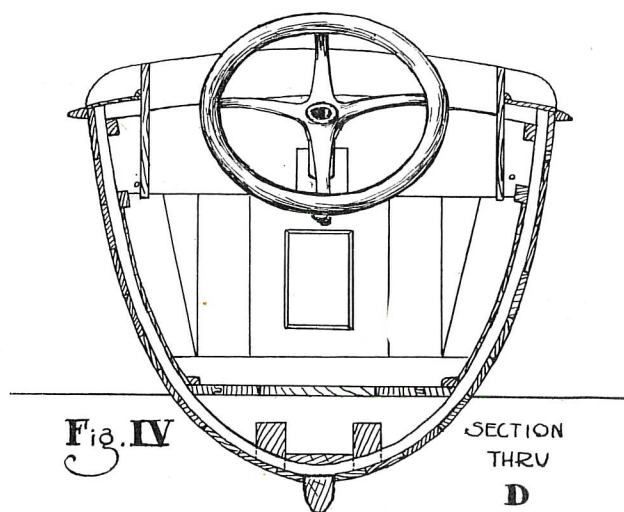
To have the shaft as short as possible which is a desirable feature, the engine must be set back as far as can be, without over-balancing the boat, or the propeller put well under the hull which accomplishes the same purpose. When the boat is launched it is well to uncouple the shafting to see whether it is still in line after the boat is water-borne. If you find that the shaft is no longer truly lined the correction can be made in one of two ways: the location of the stuffing box can be slightly changed provided the hole in the dead wood is not too small. The other way is to slacken up on the engine bed bolts and drive oak wedges between the engine and the engine bed. In either way true alignment is secured again.

There are three vital parts to the steering gear. The first is the rudder; the second is the tiller ropes and the third is the wheel by which it is all controlled.

As to the shape and size of the rudder, it largely depends upon the shape and size of the boat. The rudder on the boat made by Oscar Seeger has a stern post with the rudder hinged all the way down, making the strength more evenly distributed thruout the length of the rudder, thus lessening the twist on the rudder head. This kind of construction also allows that the rudder be fairly narrow, a narrow rudder of this kind being less affected by a sudden slap. A wider one might break or distort. The material of which this rudder is made consists of two sheets of galvanized iron riveted together. Notice the particular shape in the sketch. The size of the rudder is one hundred square inches. The rudder port is made of a piece of pipe threaded and screwed into the keel projecting up above a possible water mark. The ropes are made of galvanized wire run along under the coaming, and the sheaves thru which the ropes pass are composed of small rollers fastened to the ribs of the boat. The ropes are controlled by a steer wheel located well forward as shown in the sketch. The wheel once served a similar purpose on an automobile.

The gasoline tank, which is made of galvanized iron and has a capacity of ten gallons, is located under the rear seat as high as possible to give a better fall for the gasoline towards the engine. The batteries are placed under the center seat and the switch control is near the pilot wheel.

The boat was now ready for the final coat of paint. The fixtures required, such as lights, horn, fire extinguishers, life belts, etc., were found by consulting the



CROSS SECTIONS OF BOAT.

marine laws which differ for various waters and for different purposes for which the boat is to be used.

Upon launching the boat, real pleasure was experienced to note that the launch floated perfectly and when the engine was started the pleasure was intensified to note that the boat ran perfectly and at the desired speed.

INDUSTRIAL ARTS DESIGN

William H. Varnum, University of Wisconsin

(Seventh Article)

ENRICHMENT OF THE OUTLINE IN BASE AND PRECIOUS METALS.



ENRICHMENT of the Base Metals—Iron, Copper, Brass, Bronze. The contours of clay forms are generally free to take the curves and direction dictated by the knowledge and taste of the designer. Metal outlines are more restricted in this respect. It is frequently associated for service with other materials and consequently its design is often governed by this intended use. For example, if we were to design a metal drawer pull for a buffet, it would have to be considered in relation to the character and shape of the buffet. Again, the screws with which it is attached to the buffet would influence its outline design. It is, in other words, a dependent outline.

Free and Dependent Outlines. To distinguish between an outline unlimited in character and one bound by other considerations we will term the restricted outline a *dependent outline*, for its enrichment must be related to other forms either within or without its surface. A *free outline* on the other hand is one in which the designer is free to follow his ideas unrestricted by any other outside consideration, except service and design consistent to the material.

In order to emphasize the nature of a dependent outline, we have *Rule 5f*. *Dependent outline enrichment should be related to essential parts and influenced by their forms and functions; it must be consistent with the idea of the subject.*

Enrichment of Edges. We will start with the simplest form of outline enrichment of base metals, the decoration of an edge. It is contrary to the policy of the designer to leave sharp edges on articles intended for intimate household use. The rounding of sharp edges is likewise dictated by the laws of beauty. The transition from one plane surface to another is assisted by a rounding edge as the eye takes kindly to the softened play of light and shade.

This gives us the simplest form of enrichment, the beveled, chamfered or rounded edge, Figures 143 and 144, Plate 24. The rim of a thin 18-gauge plate is likewise improved and strengthened by lapping of the edge as shown in Figure 145, giving the rounded effect of Figure 144.

Enrichment of Functional Parts. There are six functional parts with which we are brought into common contact in industrial design of base metals. While there are many more, these are the most common and consequently of the utmost importance to the designer as design centers. These parts are itemized as follows: 1, Corners; 2, Appendages; 3, Intermediate Points; 4, Terminals; 5, Links; 6, Details. As the decorative treatment of each part varies with the functional duty, (Rule 5d, Article 6) separate treatment and consideration of each part will be necessary.

Enrichment of Corners. Corners, as extreme turn-

ing points of the design are often found convenient for the location of screw holes, rivets, etc. As locations for these prominent factors of service they become prominent functional parts of the design and by custom and the laws of design (5d), they are capable of receiving outline enrichment. But the contour of the corner must be related to the screws or rivets, particularly if they are near the edge, hence our outline becomes a *dependent outline* and as such must be related to the rivets or screws by Rule 5f.

Figures 146 to 149 show various arrangements of this type. The unity of the design is not lost, and the functional parts are enriched by contours related to the elements of service (rivets). Figure 153 is another but slightly modified example of the same laws applied to hinge construction. The enriched outline in this case is closely associated with the holes in the hinge. The hinges in turn must be related to the object for which they are designed.

Figure 150 is a common example of corner enrichment by means of varying the edge at these points by a change in the character of the outline, i. e., by rounding the corners.

Enrichment of Appendages. As appendages have distinct functional duties their design may vary as the design of the arm of the human figure differs from the head. Yet, as a part of the same body, it must fit the shape of the object to which it is attached. The candle holder and handle as appendages of Figure 150 are designed in sympathetic relation by means of tangential and similar curves sufficiently varied to give the eye a feeling of variety in the design. The novel single flower holders (Figures 151 and 152), with the glass test tube acting as a container show other possible forms of the appendage design. The first is informal and the second formal but both adhere to the first simple rules of appendage design (Rule 4a, etc.).

Enrichment of Intermediate Points. The enrichment of center or intermediate points should be handled with great care and not without a definite reason. Careless handling may cause the design to lack unity. Figures 154 and 155 show a simple twist as enrichment. The serviceable reason for this is to obtain a better grip at this point. Again, it varies the character of the straight edges and adds interest without loss of compactness or unity. If one is desirous of widening a vertical or horizontal rod, the enrichment by welding a number of small rods together with a spreading twist to the free rods, gives a pleasing and serviceable handle, Figure 156.

Enrichment of Terminals. As the public demands a happy ending to a story or a play, so does the eye demand a well-designed ending to a design. The part that terminal enrichment plays in industrial design is, therefore, to say the least, important to us as designers. Figure 157 illustrates terminals in thin metal and is published by courtesy of the School Arts Magazine from

OUTLINE ENRICHMENT OF THE PRIMARY MASSES OF THE BASER METALS.
ENRICHMENT OF EDGES - CORNERS - INTERMEDIATE POINTS - APPENDAGES.
SEE PLATE 25 FOR TERMINALS, LINKS, DETAILS.

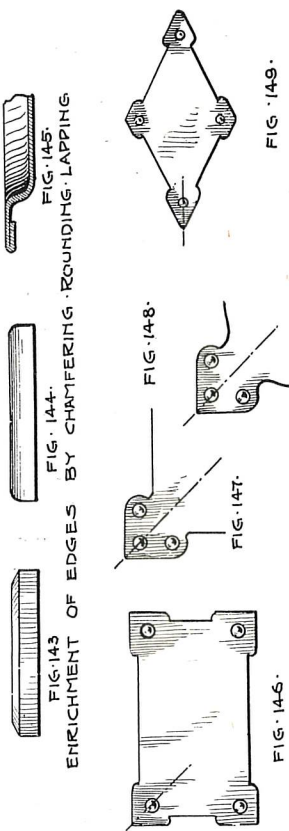
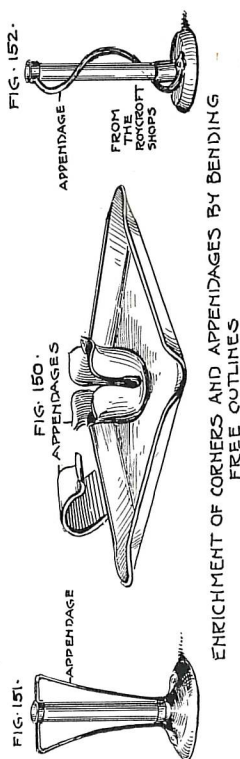


FIG. 146.

FIG. 149.

ENRICHMENT OF CORNERS BY FILING AND SAWING; DEPENDENT OUTLINE.



ENRICHMENT OF CORNERS AND APPENDAGES BY BENDING
FREE OUTLINES

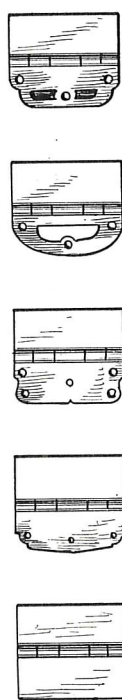
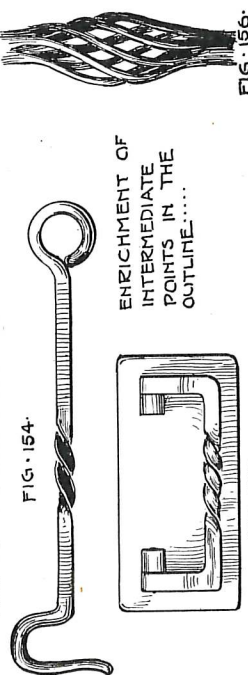


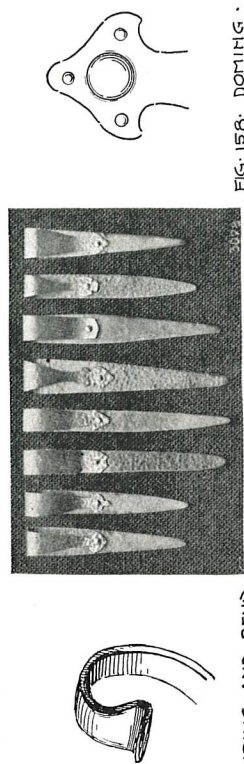
FIG. 153: HINGE VARIATIONS SHOWING CLOSE RELATION BETWEEN INTERIOR FUNCTIONAL FEATURES (RIVETS, SCREWS) AND OUTLINE ENRICHMENT. THEY ARE TYPICAL EXAMPLES OF DEPENDENT OUTLINES.



ENRICHMENT OF INTERMEDIATE POINTS IN THE OUTLINE....

Plate 24.

OUTLINE ENRICHMENT OF THE PRIMARY MASSES IN THE BASER METALS. THE ENRICHMENT OF TERMINALS, LINKS AND DETAILS... FREE OUTLINES.



EXPANDING AND BENDING.

FIG. 160.

FORMS OF TERMINAL ENRICHMENT

NOTE: FOR TURNING, SEE PLATE 20 AND FIG. 165.



FIG. 163 BENDING

DETAIL



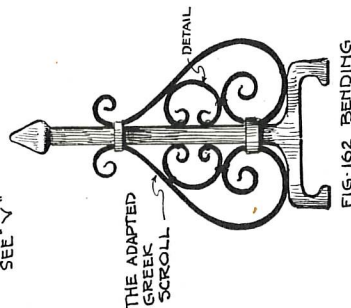
CURVE OF FORCE

FIG. 159.

THE IONIC VOLUTE OR CURVE OF BEAUTY. A TERMINAL CURVE OF EXTREME IMPORTANCE. SEE "Y."

FIG. 161
BENDING
TWISTING
WELDING
EXPANDING

FIG. 164... IS USEFUL AS A CONNECTING DETAIL AND IN A MODIFIED FORM AS A LINK.



THE ADAPTED GREEK SCROLL

DETAIL

APPENDAGE

LINKS AND TERMINAL HOOK CURVES... BENDING... RAISING... CASTING... FIG. 165.

Plate 25.

one of the articles by Mr. Rose. The outlines are in part dependent in character, controlled by rivets. Notice the change of curve as the function changes from the *dependent curve* of the rivet area to the *free outline* of the handle and again from the handle to the cutting blade, a functional change of marked character, but in thoro unity with the entire design. It is again emphasized that whether the design possesses a free or dependent outline, or an interlacing of both types, all parts of the design must be held together by entire *unity*. The rivets are occasionally placed towards the edge and a domed boss used to accent the center as is shown in Figure 158.

The Ionic Volute.

Terminal Enrichment in Wrought Metal. As the Curve of Force was a valuable curve in wood construction so we find an equally valuable curve fitted for wrought metal. Its recurrence again and again in industrial design leads us to appreciate its value in the arts. It is the Ionic Volute handed down to us in its present form from the time of the Greeks, who developed it to a high state of perfection.

While its geometric development is a tedious process it may be easily constructed for practical purposes by the following method. In Figure 159, "P" represents a small cylinder of wood, possibly a dowel. A strong piece of thread, or fine wire, is wrapped around the base of the dowel a number of times and a loop formed in the free end. A pencil with a sharp point is inserted in the loop and the pencil and dowel are placed together on a sheet of paper. As the thread unwinds from the dowel the point of the pencil will describe a volute which may be developed indefinitely, but a few turns will serve our purpose. It will be noticed that no corresponding parts of this curve are concentric and the curve thus has constant variety. It has been termed the curve of beauty and is found in nature in the wonderfully designed shell of the nautilus.

It is advisable to form several templates for the volute out of bent wrought iron and of different sizes and to practice drawing the curve many times to accustom the hand and the eye to its changes of direction. The "eye" or center portion is sometimes terminated by thinning and expanding in the manner shown in Figure 160.

One form of application of the volute is shown in the terminal points of the candle-stick in Figure 161. It is here shown combined with the second volute in the form of a reverse curve. In Figure 162, it has been combined with a smaller but reversed volute at the upper end, and the entire and combined curve is commonly known as Greek Scroll. In Figure 163, the Greek Scroll has been combined with the reverse curve of Figure 161 as a portion of the bracket. In this figure we find the familiar curve of force faithfully serving its function as a supporting member for the top portion of the bracket.

Enrichment of Links. A link is a convenient filler in connecting parts of a right angle. It likewise serves as a brace in connecting several disconnected parts and is useful in maintaining the unity of a design. Figure

164 shows a common form of link, with its ends thinned and expanded in accordance with Figure 160. This latter point may, however, be omitted as it is technically quite difficult to accomplish.

Enrichment of Details. Details are the smaller portions of the design and similar to the trimmings and minor brackets of a building. They enter to a considerable extent into wrought metal grille design. They are generally formed of the link, Greek Scroll or the Ionic Volute so as to be in harmony with the other parts of the design outline (Rule 5f). Their presence and use may be readily detected on Plate 25.

Summary of Wrought Metal Free Outline Enrichment. As we are now familiar with continuity in wood moulding curves, we should feel, in reviewing the last figures, the value of flowing continuity and tangential relations necessary in designing this form of enrichment. The curves that we have considered are adapted to the materials and a comparatively large and new field of design is opened to the designer thru combinations of curves mentioned. Plate 26 is self-explanatory and brings out the general application of the foregoing principles as applied to cast bronze hardware. It is interesting to notice the change of enrichment paralleling the change of function as outlined in Rule 5d.

Outline Enrichment of Precious Metals.

Outline Enrichment of Silver. Little has been written regarding the designing of jewelry. As can be readily seen, a semi-precious stone is the controlling factor in the major portion of the designs with silver as a background, any enrichment merely accentuating the beauty of the setting. This statement would lead us to consider the outline as *dependent* in character and thoroly related to the stone. It is necessary then, to take the stone as a point of departure. The standard stone cuttings used in simple jewelry are shown in Figures 166 to 170. The first three and the last are cabochon cut, elliptical in contour with flat bottoms. The long axes have been drawn in each instance.

With Figures 171 to 174 we begin to see the close relation between the stone and its enclosing form (Rule 5f). A longer major axis in the stone calls for an increased length in the corresponding axis of the silver foundation or background. It is really a re-echo of the proportions of the primary mass of the stone in the mass of the silver. It is well for the beginner to make the axis of the stone and the silver coincide and to use this long axis as a basis for future enrichment. In a vertical primary mass similar to Figure 180, it is better design to place the stone a short distance above the geometric center of the mass as it insures a sense of stability and balance. A stone placed towards the bottom of a design of this nature is inclined to give a feeling of "settling down" or lost balance.

Figure 176 shows a variation of 171. The two circles, related to the stone are connected by four silver grains or balls. Figure 177 is an attempt to enrich the contour, but it has a tendency to detract from the simplicity of the unbroken outline and as a result, little is gained by its introduction. Figures 178 and 179 show a

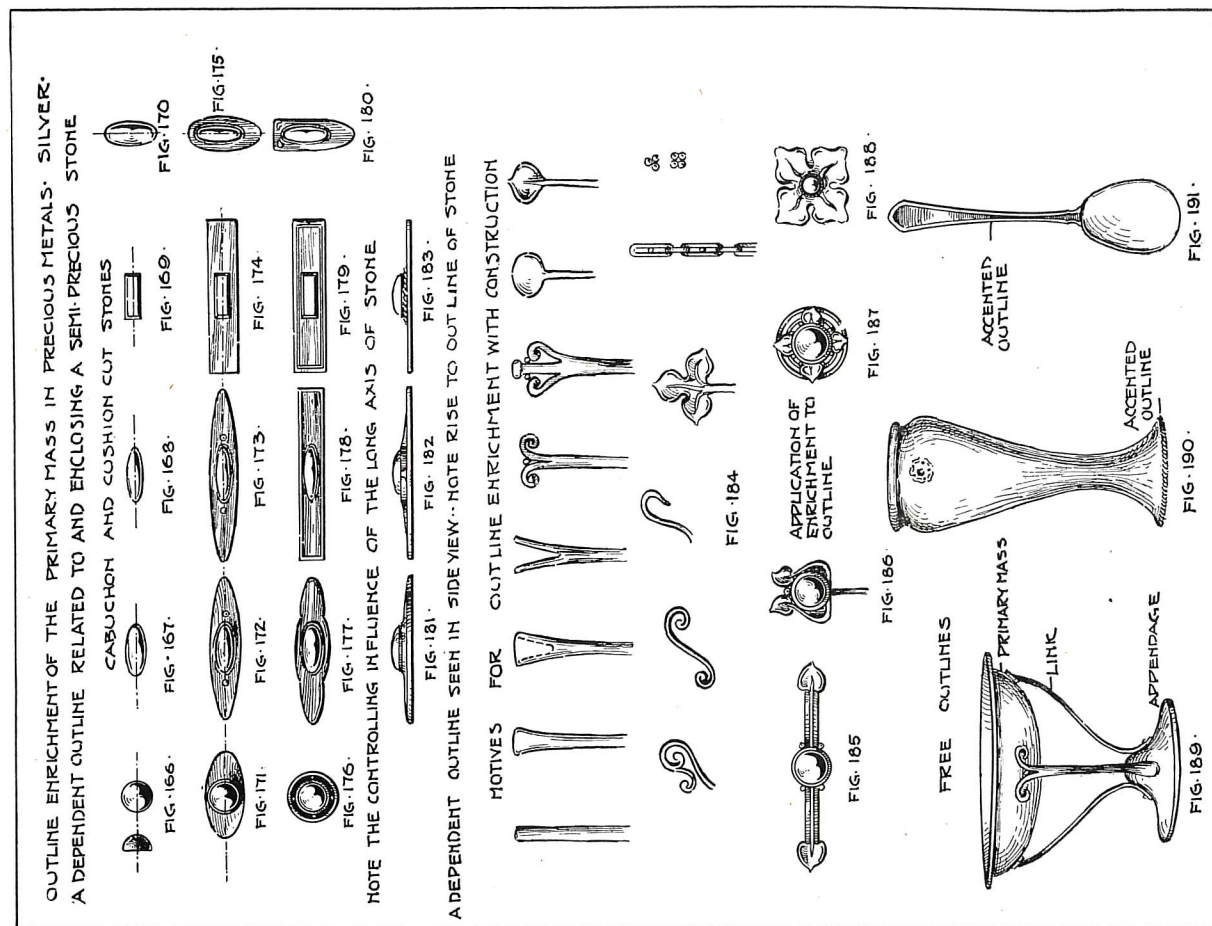


Plate 27.

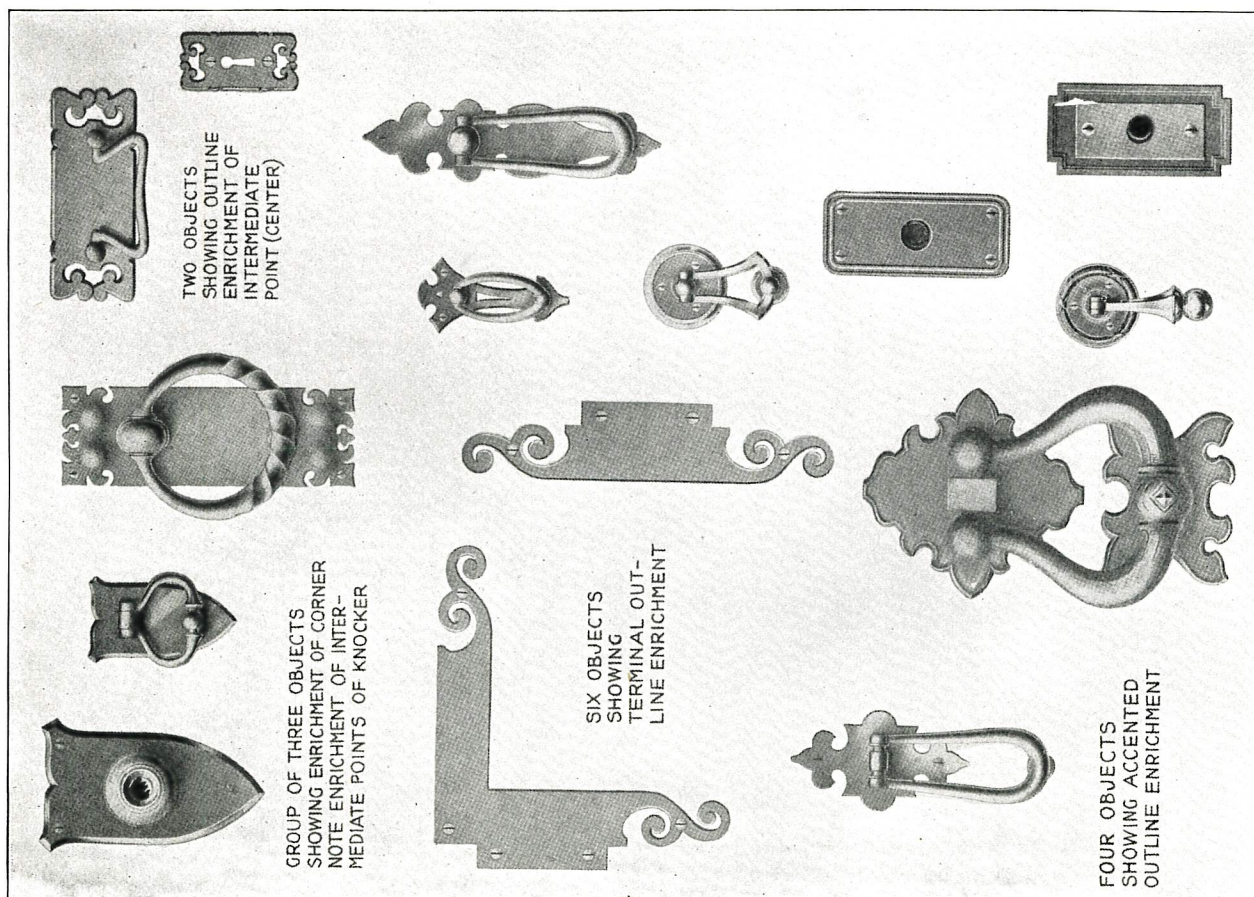


Plate 26. Examples of Hardware. Courtesy of P. & F. Corbin, Chicago

better form of enrichment by accentuating the outline. This may be accomplished either by engraving a single line paralleling the contour or by soldering a thin wire around the outline.

While the top view of an article of jewelry may have been carefully designed the side view in most instances is totally neglected. The side view should show a steady gradation from the surface of the silver to the outline of the stone. This prevents the stone from bulging from the surface like a sudden and unusual growth. Doming, small wedges of silver or a twist around the bezel may accomplish this as can be readily seen in Figures 181, 182 and 183.

Motives for Outline Enrichment. While emphasis should be placed upon simplicity of outline, certain well regulated forms of enrichment may be added to the contour and enhance the beauty of the stone. Such motives with constructive steps are shown in Figure 184 and their application in Figures 185 to 188. It will be noticed that the enrichment *invariably leads up to the stone* which is the center of interest in the design.

The ornament is likewise based upon the prominent axes of the stone.

Free Outline Enrichment in Silver. Figures 189, 190 and 191 are types of beaten and raised silver work and show characteristic forms in silver, with two examples of accented outline enrichment. As curvilinear forms, their design is similar in many ways to clay forms of similar proportions and uses.

Summary of Rules for Outline Enrichment. (In Articles Six and Seven.)

5d. Parts of one design differing in function should differ in appearance but be co-ordinated with the entire design.

5e. Outline curves should have units of measurement in accordance with Rules 2a and 2b.

5f. Dependent outline enrichment should be related to essential parts and influenced by their forms and functions; it must be consistent with the idea of the subject.

Article eight will consider the question of surface enrichment in various materials.



FIG. 192. UNION OF OUTLINE ENRICHMENT IN CLAY AND METAL.

COSTUME DESIGN AND ILLUSTRATION

Ethel H. Traphagen

(Eighth Article)

Design.



ORDER is the law of all design and it is most important that we think in an orderly way. No matter how far we allow our fancy to go we should never lose sight of the principles of design—Balance, Rhythm, and Harmony. Furthermore we should always aim at simplicity and appropriateness.

Like the architect we should study ancient and mediaeval examples as well as later ones for, like him, our problem is two-fold,—first how to find out the best and most beautiful that can be conceived and next how to adapt it to our own present day needs. See illustration 61.

Great heed must be given, fundamentally, to the personal frame-work. Then the materials used for comfort or ornament can be so chosen and so treated as to neutralize individual defects or deficiencies and to enhance every good point.

Points on Design: Facts.

Stout people should avoid large hair ribbons and hats which make a person appear shorter than their real height (as they enlarge the head proportion).

Stout people should avoid sleeves that are very full at the shoulder and skirts that are very narrow at the bottom (as these accentuate size of hips and trunk).

Horizontal lines make figures look shorter and stouter (the shorter the vertical lines are made the shorter the person will seem). Short and stout people should avoid too wide girdles which tend to shorten verticals. Bands of contrasting tone or color accentuate the line effect. Stout people should avoid large figured goods and materials too bright or light in color.

Thin people with very narrow sloping shoulders

should avoid the exaggerated kimona and shoulder seams drooping over the arm and should keep to the horizontal shoulder lines, if they do not wish to emphasize this fact.

Tall, thin people should avoid a coat line which cuts such as are very definite or large stripes, for these lines accentuate height, but this is not true of inconspicuous stripes.

Tall thin people should avoid a coat line which cuts them into awkward lengths. Remember the Greek law: When two lines are in good relation to each other the shorter comes between the one-half and one-third of the longer line.

Tall, thin people should avoid narrow-chested effects and wearing clothes that fit too tightly.

Everybody should beware of too conspicuous plaids and stripes or figured materials.

As a rule do not mix large figured materials with small figured materials.

Small people when selecting figured goods for themselves should always get small figured material, emphasizing their daintiness. Note this even in plain stuffs, as for instance, how a narrow ribbed corduroy suits a small person better than a wide ribbed one.

Figured, striped or plaid materials which approach plain material will stand more trimming than those in which the above mentioned elements are emphatically decorative.

Equal or nearly equal amounts of dark and light are unsatisfactory unless they approach an all over tone.

When other things are equal square shoulders give one an appearance of being taller than sloping shoulders, and the higher the waist lines the greater the apparent height. The narrow belt makes a waist appear smaller and longer; whereas a wide girdle gives the appearance of a broader, shorter waist.

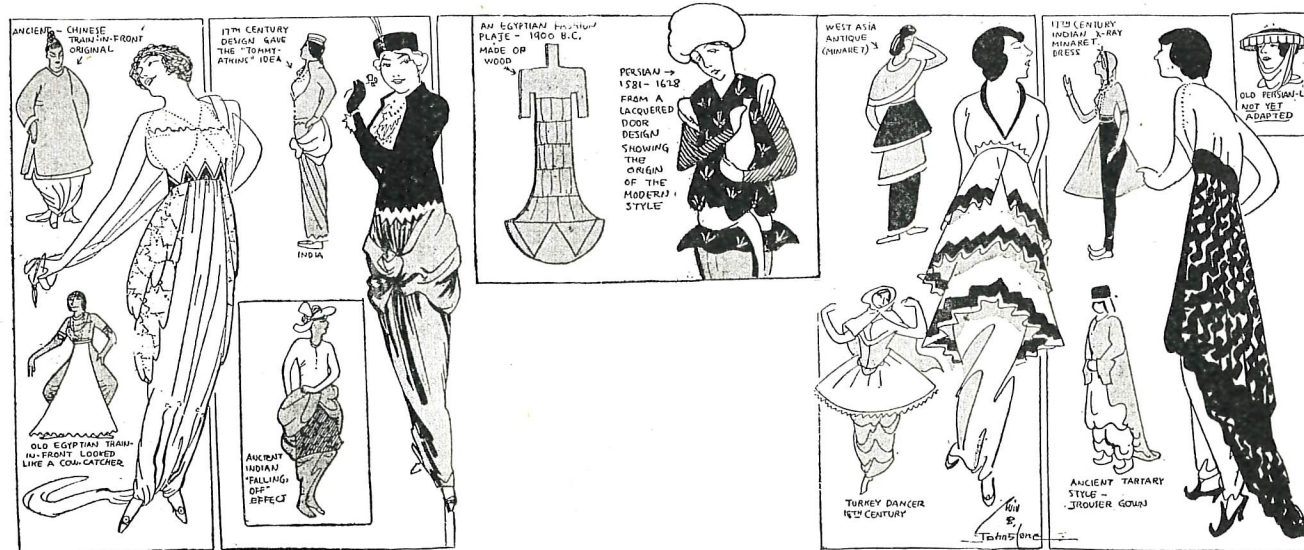


Illustration 61. Gowns that are in style today were in vogue five thousand years ago as a study of the figures at the Metropolitan Museum, New York, will show. Permission, New York World.



Fig. 53. © Criterion Magazine.



Illustration 63. © Ladies' Home Journal.

Over decoration is always bad.
Broken line effects are always bad. (For instance waist and skirts with seemingly no connection.)

A continuation of waist lines into skirt is good.
Light colors near face are good.

When one striking note of color is made (as in a belt) it should have a repetition elsewhere (as in bow on sleeve and waist).

Bearing the foregoing facts in mind we can get our inspiration from museums, things in nature or from any source that appeals to us, and start our design. See Illustration Number 61.

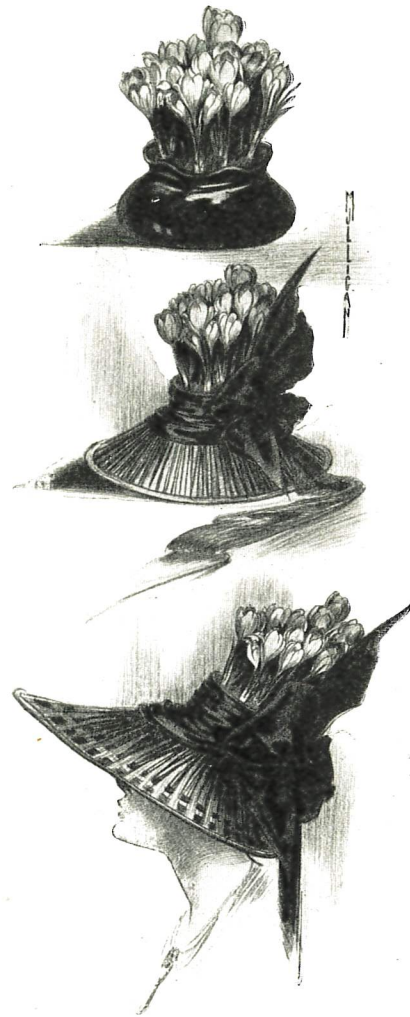


Illustration 62. Permission, Mlle. Jacqueline.

The Illustration Number 62 shows us how Mlle. Jacqueline found her inspiration for a hat in a bowl of tulips. As for the first prize evening dress of the Times Prize-Contest for Original American Designs, made by the writer (Illustration Number 60)* the Times has given the following description of its source.

First Prize.

Whistler's well known "Nocturne" furnished the inspiration for this evening gown, which owes its distinc-

* June, 1915.

tion to subtlety of color and grace of line. It is unfortunately, impossible in a sketch to do justice to the extraordinary feeling for color which the designer has shown in her selection and handling of materials, because she has obtained her effect by using semi-transparent color over contrasting color.

She has secured a faithful echo of the "Nocturne's" blue-green-gray-brown harmonies by laying pastel-blue chiffon, faintly green tinged, over putty color. The girdle is in a deeper green-blue, and its Oriental embroidery is worked out in blues and gold and the vivid

flame color of which there is but one single glint in the Whistler picture. Another note of blue is sounded in the necklace of wooden beads, the smaller beads catching up the wing shoulder draperies."

The waist made for the Ladies Home Journal, shown in Illustration number 63, was suggested by the lily of the valley.

The gowns shown in Illustration number 53 (first and third from the left), were adapted respectively from a Hopi Indian woman's dress and from an Arizona Indian dress.

CORRELATED WORK IN THE HOME ARTS COURSE AT NEW TRIER HIGH SCHOOL, KENILWORTH, ILLINOIS

Olive Lathrop Grover



UR ideal and aim, from the beginning, has been to give to the pupils something to use in their home and every-day life; a broader outlook into the realm of natural beauty; a sense of good line, proportion and color in the home and in the clothing; some power of discrimination in the choosing of materials and furnishings; and withal a sound, happy realization of the beautiful wherever they may find it.

In the early years of the two departments of drawing and domestic science, there was little co-relation in the work; nothing, in fact, beyond an occasional suggestion in a matter of design or color; but this ideal seemed to fit in with a similar ideal held in the household science classes, so we just naturally grew into correlation, and three years ago we planned what is known as the Home Arts course, occupying ten

45-minute periods a week, six in household science and four in drawing, and giving five credits a year toward the eighty required for graduation from the school.

Now for the actual carrying out of the co-operation work. As the motives most often used for embroidery and the decoration of the many things about the house, such as curtains, runners, pillows and the like, are floral or based on plant-form, we begin work in the fall with all the flower and fruit drawings that we can have material for, before Jack Frost cuts us off from the base of supplies. When the season is late, like the last one, it is possible to make a number of studies. These drawings are made with a view for future use, and show, therefore, the various positions of the flowers, buds, leaves and seed-pods, and the stem-growth, with sometimes a bit of design in one corner. These drawings are carefully kept, not only for one year, but for all



Fig. 1.



Fig. 2.

four; and are often applied to designs long after they are made.

The two co-operative problems of the first year Home Arts students are the designs for a letter to be done in chain-stitch on the laundry-bag, made in sewing classes; and stencil or embroidery designs for their gift work at Christmas-time. In the drawing classes, thruout the year, they make abstract designs, have problems in perspective, in lettering and in color, with some drawing of still-life and more work with flowers in the spring; in short, they make themselves generally ready for the next year's work.

As the classes in second-year cooking have several lessons in canning, preserving and jelly-making, one of our early problems is the lettering of labels to put on the jars and glasses. These are done in colors to match the various fruits and sometimes a tiny design of the fruit combined with the lettering. A design for French embroidery for a night-gown is next in order; this is outlined in ink to make it black enough to show thru the muslin of the gown; then a tracing is made on tracing paper, painted white and put on a dark mount. This makes it possible to see how the design will look when worked, and if it is not satisfactory it can be changed before it is transferred onto the garment. The gift or Christmas work for the second-year pupils is a piece of cross-stitch embroidery. This may be a pillow, a tray, a bag, a towel or some similar article. For these, drawings or designs are made as tho for outline or solid embroidery and then worked over into cross-stitch patterns on squared paper.

As the problem of the second semester is the designing and making of a cotton dress, we start, soon

after the holidays, with one pose drawing. The aim here is to get good outlines for dress designs and little attention is paid to features or hands. Unless a pupil shows some real aptitude along this line, these are generally omitted entirely. When we are ready to plan our dresses, we study some of the fashion books, get samples of materials and then start our designs. There are some limitations: The skirts must be moderately full, the sleeves must be sewed in and the whole dress must be rather simple. This done, the design is made and colored as nearly like the material chosen as possible, and any embroidery to be used planned; and then the pattern is drafted and the dress made, like the design. Table-setting and sewing is a part of the second-year course in cooking. The correlated work along this line is the making of place-cards, nut-cups, candle-shades and other table decorations appropriate to the particular meal which is to be served. Each year, in the spring, this class and the older ones prepare and serve a dinner for twelve or fourteen people—the members of the Board of Education, with their wives, the Principal and his wife and the teachers of the department. The illustration shows the table ready for the guests, as it looked in 1914. A general color scheme is chosen and not only the decorations but the entire menu is carried out in that scheme.

The drawing side of the third-year work is largely devoted to things for the home. As the girls make silk waists and woollen dresses, using patterns which they buy and learn to remodel where necessary, unless for some embroidery or trimming there is little chance for correlated work there, except, of course, such general training as they may have had in line and color. In the

home decoration, however, there is a broader field. The usual flower-studies are made in the fall, and then designs are planned for copper-work. First of all we have a few community problems which will be used in the furnishing of the flat. All of the class make designs for the different things, and, then one of each group is chosen to be developed in the metal, several people working on one piece. After this is done, each pupil may carry out her own design, providing her materials, and that piece becomes her own property at the close of the school year. Some of the articles to be made this year



Fig. 3. Costume Design in Water Color.

are a large inverted lamp-shade for the dining room; a cheese plate and knife, a bowl for whipped cream or mayonnaise dressing, with plate and spoon, and a holder for a jelly or marmalade jar with a spoon. In every case where food comes in direct contact with the dish or spoon, that part of it is silver-plated. This we have done outside.

Later in the year each third-year pupil, whether in the Home Arts or the regular drawing course, is expected to make a desk set of about ten pieces, or a table set, including fern-dish, casserole holder, bread-tray, candle-shades and one of several other things, such as

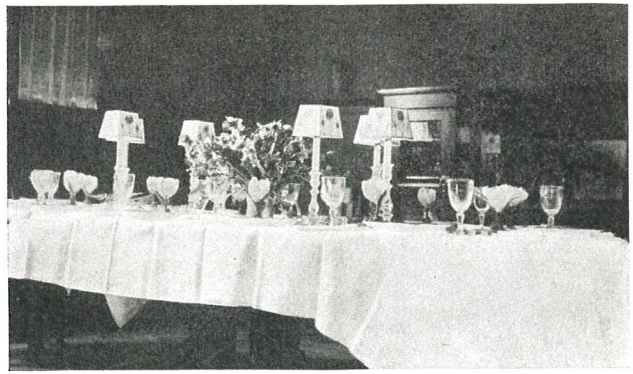


Fig. 4. Dinner Table in Domestic Science Room, Set by Students.

nut-bowl and dishes, or tiny almond dishes, crumb-tray and scraper, etc.; so that this set when completed shall have meant an equivalent in time and labor to the desk set. We have them make sets so that they may learn to use the same motive of design in different ways and still have them all go together. Toward spring they do a little work in drawing house plans; but we have found that most of the girls know too little about general house-planning to do very much that is satisfactory, especially as our time is limited. Perspective they do have, however, and talks are given on interior decorating and color harmony.

All of the work of these three years has been really carried out and is not mere theory; that of the fourth year, however, is in an experimental stage, and altho we think we are sure of what we want to do, the work of this year will show how well it works out. In the house-

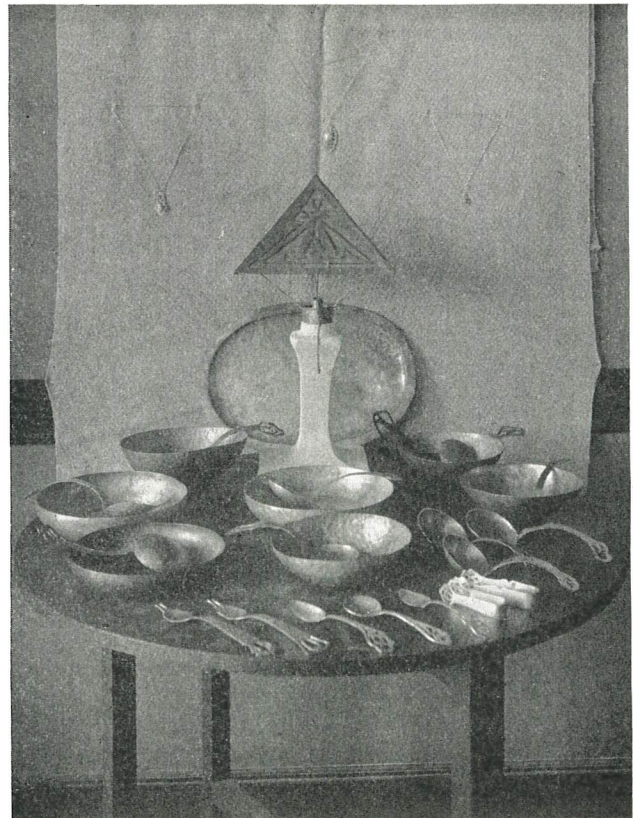


Fig. 5. Copper and Silver Work.

hold science classes, the girls spend a good deal of time in various phases of hat making, using old materials; remodelling last year's hats and making entirely new ones. With this comes the making of various kinds of bows and ribbon and velvet flowers. They have also made some very attractive lamp shades, large and small, of silk sewed onto wire frames. A large part of the theory is devoted to household management and the study of textile for the different rooms of the house. This is carried out in practical housekeeping and furnishing, and is augmented by some art needle-work as

they have the time for it. In this fourth year, the correlated work will be in the drawing of hats; the planning of color schemes; the study of good line and proportion in furnishings and more talks on home decoration, with special reference to the choice of wall-paper, carpets or rugs, and furniture coverings; and the hanging of pictures and draperies.

When a girl has successfully completed this four-year course in Home Arts, we feel that she is prepared to make a home of her own when the time comes, or to go on into more advanced work of the same sort.



Fig. 6. Hats Designed and Made by Students.

A DESIRABLE PROFESSIONAL STATUS FOR THE MANUAL TRAINING TEACHER

Extracts from the Report of a Committee of the Eastern Arts Association

Evidence of a concerted movement for improving the professional status of manual training teachers, and for giving the entire manual training movement a new impetus in accordance with changing educational conditions, is presented in a comprehensive report adopted April 29 by the Eastern Arts Association.

At the meeting of the Eastern Art and Manual Training Teachers' Association (now the Eastern Arts Association), held in Atlantic City, April, 1914, a committee consisting of James McKinney, Chairman, F. W. Wing, Edward C. Emerson, Helen Livingston and A. E. Enwistle was appointed to study and report upon the desirable professional status, requirements and qualifications of manual training teachers.

The committee worked an entire year with the help of the various manual training clubs and associations in the New England and North Atlantic states. Its report is a frank recital of the shortcomings of manual-training instructors and a comprehensive program for improvement.

A Frank Criticism.

The report takes up the problem by making nine indictments of the manual-training teacher. To quote the more important shortcomings:

"We have as a profession no real vision of our job.

"We are told by the vocational enthusiasts that we are 'on the way' without knowing where we are going.

"As an association we have contributed much to the problem of determining the requirements, qualifications and rating of the manual-training teacher, but have allowed politicians, boards of education and supervisors to determine the whole problem.

"As teachers we have not made contributions to manual training theory and practice in proportion to our ability and training.

"As a body of teachers of manual training we lack professional consciousness and do not give our profession the real, live support such as the Bar Association gives the law.

"We fail to contribute much to the life of our local clubs and organizations.

"We fail to give our professional magazines needed help and co-operation in their work."

Scope of the Work.

The report proper takes up six general questions, which it seeks to answer. These questions, in brief, are:

1. The contribution which the manual-training teacher can make to the general educational problem.

2. The manual-training teacher and his contribution to manual training methods and practice.

3. The attitude of the association to the training of the manual-training teacher, and particularly to that of the "tradesman" teacher.

4. The attitude of the association to the requirements and qualifications of the various city systems.

5. The attitude of the association to the present plans for certification of manual-training teachers.

6. Ways and means of arousing interest in the profession.

Relation of the Manual-Training Teacher to General Education.

In discussing the relation of the manual-training teacher to general educational problems, the report points out that from the nature of his training and interests, "the average manual-training teacher is apt to look at the general educational problem with some indifference and a rather remote and too practical point of view." "In doing so he is in danger of confusing ends and means to the

extent of losing sight of the larger ideals which are the common goals of all departments of our school systems."

To be efficient co-workers, manual-training teachers "must study and understand the other teachers' point of view. Where the cobwebs of tradition, or false ideals of democracy and culture, are shutting out the light of progress," they must "attack with a fearless spirit."

On the other hand, in the opinion of the committee, they cannot sit idle, feeling that they have no concern with the academic work, if they want to form any adequate judgment on the important matter of time that should be devoted to their special task. While they are specialists in that they excel in their particular line of work, they are not specialists to the extent of ostracizing themselves from the general educational problem. The problem of understanding the possibilities of manual training, and its functions at various ages, is still unsolved and success in its solution will be in accordance with the grasp of the larger educational problem.

The Manual-Training Teacher's Contributions.

In studying the second question, the committee sent a questionnaire to several cities. The replies received indicated that a large number of teachers are shaping the methods and practice in their respective communities. To make the efforts of such teachers directly helpful and effective, the committee suggested that a "Manual Training Council" be established in every community. This council should be based upon the recognition of the principles (1) of democracy in education; (2) the feeling of kinship and partnership in the project of manual training, which results in real interest; (3) the faith in democracy which will not accept the theory that supervisors and boards of education are omniscient on any manual training problem; (4) the faith that supervisors will gladly accept a democratic plan of help in their problems.

The plan offered must naturally be modified to meet local conditions, imposed by the size of the city, the rules of the board of education, etc. As a minimum, however, the committee seeks:

"1. The formation of a council in each town or city, to be elected from the rank and file of manual-training teachers to work with the supervisor on such questions as planning a course of study and selection of equipment.

"2. The entire staff of teachers to be considered as the council, having advisory powers. This council to meet at stated intervals and discuss frankly the work of their group.

"3. An executive committee composed of the supervisor and teachers who have served ten years, the senior supervisor to be chairman of the committee. The committee to pass on suggested models, courses of study, equipment and other matters which the board of education might trust to their judgment."

The Preparation of Teachers.

In commenting to the committee on the training of teachers, one supervisor wrote: "Unfortunately, professional training is no guarantee of a good teacher. Personally I have yet to meet the college graduate who was immediately a competent teacher of woodwork."

The answers to the questionnaire of the committee "seemed to indicate that the tradesman teacher is becoming more and more in favor with supervisors. The answers also proved that the tradesman teacher is 'making good.' He is, at least turning out a boy who can drive a nail and use a saw and plane with some degree of success."

"Sixty-one per cent, or 133 teachers in New York are tradesmen, a large majority starting out as substitutes

with practically no pedagogical training; in Newark, N. J., 25 per cent are tradesmen; in Montclair, N. J., 100 per cent are tradesmen and all have had pedagogical training; in Philadelphia, 90 per cent of the high school teachers are tradesmen and 50 per cent of the elementary teachers, while many have had no previous pedagogical training; in Pittsburgh, 33 per cent are tradesmen with practically no previous pedagogical training."

"In all cases, where men start as teachers without pedagogical training, adequate provision is made for obtaining this training and in most cases credit is given for the work."

"In discussing these facts, the committee is offering no apologies. A truly trained teacher is one who has acquired the skill of a craftsman in his craft, who has the ability to teach, and by that we mean the man who knows more than one method, and who is not bound with any method and who can present his study with interest and enthusiasm; who has the moral character and personal force to exert a proper and wholesome moral influence; a man who has not ceased to put away childish things, but who is still part boy. Supervisors have found it difficult, if not impossible, to get any number of such trained men, and have naturally turned to the men who had been trained in some of the important essentials. Knowledge of the subject ranks high in this list of essentials, and seeing that woodwork has been the backbone of manual training subject matter, expert woodworkers have been sought as manual training teachers.

"With the gradually changing theory of manual training, there is plenty of indication that the function of manual training may be carried out successfully in other crafts besides woodwork; (the work now being done in concrete, metalwork and printing is surely adequate proof of this), and therefore as a profession there is danger that we may find a goodly number of our members sticking in a rut. We must be awake to the fact that our teachers must have something more than the knowledge of one craft. What we really need on the practical side is a *mechanic type*, a jack of many trades and perhaps a master of *one*, and whether that one is woodworking or something else does not matter much.

"The real danger to the profession lies in the motive of the man who has come to teach our boys. The man who has come for reason of "easy money" or "steady work" is apt to be satisfied alone either with his professional training or his craftsman experience.

"Another phase of the teacher's training which demands careful attention, is the standard of measurement of a man's success. Shall we measure success by the attainment of college degrees, or by real contributions to theory and practice as they must necessarily be worked out in the common round of every day's task. The letters 'Ph. D.' appended to a man's name signify that the individual has done certain prescribed work in an educational institution, and the studies may or may not apply to manual training. The present tendencies of awarding the best positions to the persons who can most eloquently address an audience of educators, or who have a number of college degrees, has a danger of turning the most promising men in the college direction for the mere purpose of getting a degree. It is a fair supposition that if the same time and earnest study were put on professional problems, that the man and the profession would be richer in the things that count for real success and service."

Requirements for Teachers.

The committee's study of the requirements of the cities like New York, Newark, Jersey City, Philadelphia, Pittsburgh, Boston, show a fairly standardized form of requirements. These are: "(1) Graduation from an approved high school or its equivalent; (2) Graduation from an approved professional or technical school; (3) Some

cities substitute for the graduation from the professional school, one year's successful experience in teaching the subject; (4) Some cities have a substitute plan. Two years of successful experience as a substitute teacher of shopwork, together with the completion of a satisfactory professional course in shopwork, is accepted."

On the whole, the committee thinks the requirements are satisfactory, but questions very frankly any plan which allows a substitute teacher to take full charge of a class under the above condition.

Certification of Manual-Training Teachers.

The committee asked the association to place itself on record as standing for a definite plan of certification. "This should not be interpreted," the committee said, "as an effort to create a *restricted* eligible body of teachers, but rather as a stand for such certification that guarantees that only teachers having carefully formulated minimum qualifications are eligible."

The committee considered that the state should be the sole certifying authority. By proper systems of examination and certification, great help could be rendered local school authorities in the selection of proper teachers.

"This does not mean that local authorities should be deprived of their choice of teachers. On the other hand, the plan would leave to them a body of selected prospective teachers, from which the supervisor could get the men who would best meet the local need. The committee felt that the initial license should be probationary in character and should expire at the end of the first year's teaching. Renewal should be granted on evidence of fitness."

This evidence should consist of a composite judgment such as:

1. Recommendation of local authorities: a studied survey of the teacher's work including his moral influence with the class.
2. A report by the state agents.
3. A report from any professional institute at which the teacher may be studying.
4. A written report by the teacher himself covering his professional intentions and interests.
5. Criticism of his work; suggestions for improvement, etc.

Renewals of certificates or license should be annually for the first five years. This would provide means for disposing of unsuitable teachers. At the close of these first five years, the renewal might well be for a longer period, say five years, and on the same form of examination.

Co-operation of Manual-Training Clubs.

The committee's study of the work of local clubs led it to believe that there is a lack of co-operative development and interchange of ideas. Practically the only medium of exchange is in the professional magazines which are poorly supported and to which only a few clubs report.

In suggesting a plan for co-operation, the committee pointed out that success will depend upon maintaining the spirit of democracy among the teachers. All must be interested in the efforts put forth on problems of vital professional concern. The committee suggested in brief:

1. That the Eastern Arts Association publish, in its annual report, a list of clubs to include the names of officers and committees working on problems of professional interest.

2. That the association publish a bulletin previous to the annual meeting, to include lists of committees, a list of manual training clubs and synopses of work which the committees are doing.

3. That local manual training clubs study the organization, work and methods of other clubs.

4. That each club be urged to formulate the judgment of its members on the important and urgent questions which are calling upon the profession for study and endorsement.

A SUCCESSFUL PRACTICAL ARTS CLASS

M. Norcross Stratton, Springfield, Mass.



THE Practical Arts Class of the Chestnut Street Grammar School, in Springfield was established as an experiment in September, 1913, for boys of 12 years or over who expect to find employment at the end of their grammar school course, who are not inclined toward book work or who intend to enter a trade school or a vocational school to complete their education. Sufficient attention has not hitherto been paid to such boys, altho their tastes and aptitudes differ from those presupposed by the usual school curriculum.

It is in no sense a trade training that is offered. It is intended to give the boy an experience in each of several trades so that he may "find himself," so that he may discover his aptitude for some particular craft; and it is hoped that it will serve to assist the boy to make an intelligent choice of a vocation thru the variety of experiences offered. It is also intended to vitalize the regular academic work by bringing into close relation the boy's studies and what he does with his hands.

The class was formed in accord with a plan formulated by Mr. Egbert E. MacNary, supervisor of manual training in the local schools and principal of the Vocational School, and presented by him before the 1913 convention of the Eastern Art and Manual Training Teachers' Association. Much credit for the inauguration of the class and its success is due to Mr. Albert Candlin, principal of the Chestnut Street School.

The work of the Practical Arts Class differs from that of the Vocational School in that it admits children as young as 12 years of age, while the Vocational School does not admit them under 14 years. The aim of the Vocational School is to train a boy to earn a living by a particular occupation, while the aim of this class, as stated above, is to help the boy choose a trade by giving him experience with several, and to stimulate his interest in his book work by the study of problems in the classroom which are drawn from his experiences in the shop. It is not intended as a "feeder" for the Vocational School, but is a separate educational effort.

Back of the Practical Arts Department is the idea of the differentiation of courses in the upper grammar grades to enable pupils to "find themselves" as soon as

possible and it is hoped that the Practical Arts Class may eventually lead to the establishment of this innovation here in the grammar schools—"A course for pupils who desire cultural courses in the high school, another for pupils contemplating commercial courses in the high school, a third for pupils preparing for further pursuit in industrial or mechanical branches and a fourth for that heretofore greatly neglected group of boys and girls who must enter the commercial or artisan world upon the completion of the grammar school course or even before that date."

The experiment has proven to be a great success—so much so that three similar classes have been formed in other local grammar schools and this, the original class at Chestnut Street, now numbers fifty boys, with a large waiting list, as compared with the 24 boys of last year, and requires the services of an assistant teacher for classroom work.

In regard to the work of the class, the boys spend one-third of their time in shop work and the remaining two-thirds of it in book work. A small part of the shop period is devoted to the assigning and discussing of arithmetic and language work by the shop teacher, which is carried out in the classroom by the classroom teacher. The entire group meets each day for five minutes for opening exercises. The course is two years long.

The academic subjects taught are Arithmetic, Language, Composition, Industrial Geography, American History, Reading, Spelling, Civics, Penmanship and Drawing. All work is related as far as possible, to the work in the trades. For example, in the building of the concrete floor of the bicycle shelter, one of the class projects, the boys in their arithmetic work computed the area of the space to be covered, the volume, weight and cost of the cement, sand and stone used and they made out bills for materials, receipts, etc. The language work included descriptive compositions on the need of the shelter, manner of mixing cement, how the earth was excavated, making cement sidewalks, etc., and business letter ordering material, applying for positions and soliciting other concrete jobs.

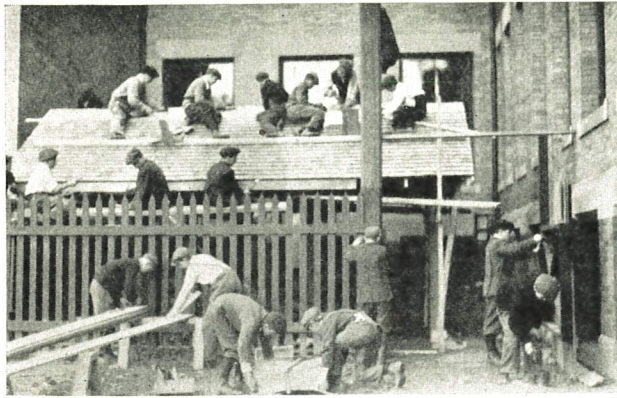
The history of cement and its uses was studied and for geography the source of materials used in the work,



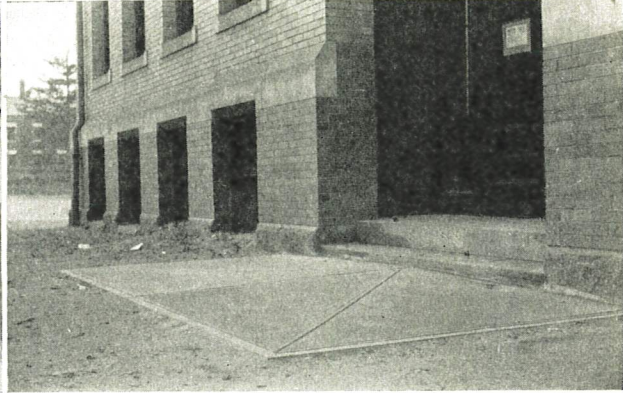
BUILDING A FENCE.



MIXING CONCRETE FOR A WALK.



ROOFING THE BICYCLE SHELTER.



CEMENT WALK MADE BY BOYS.

the transportation routes to Springfield, the geography of Springfield, including the location of the local sand and stone supply was taken up. The spelling words were all taken from words used in connection with the job in hand.

A wide range of trades is introduced, including woodworking, masonry, metalworking, painting, electrical working, printing, business practice and agriculture. The experience in the trades is a practical one. Real projects are undertaken, real tools and materials are used and the results are of permanent value. All jobs are undertaken in response to a real need, thus giving the boy an actual experience as a real workman who is contributing something of permanent value to the school community. The work promises to make valuable citizens out of children who might otherwise be added to the unemployed or unskilled.

The class has two rooms devoted to its use—one in the basement where the shopwork is done, and a classroom on the third floor. In the shop each boy has a kit of tools and a place to keep it. Three separate rooms are provided for tools, stock and lockers. The boys have done much of the work of putting the room in shape for their use. They made all of the furniture of the room, put in the electric wiring for lights and bells and have done the painting and other finishing.

The classroom is provided with movable desks and seats so that they may be arranged as necessary for special work. Small jobs such as binding books, tying programs, etc., are done in this room. Frequently the boys leave their desks and arrange their chairs around two large tables, with which the room is equipped, where they do drawing and special arithmetic work and upon which large maps can be conveniently placed for their work in geography. Recently at a "Parents' Day" the desks were removed and chairs arranged so that the audience was easily accommodated for the exercises given and ample space provided for an exhibition of work.

An outline of the projects planned and executed by the pupils of this class to date follows. The making of objects is preceded by discussing and realizing the need, planning, expressing plans with drawings, and writing specifications. The shop work is organized upon a shop basis, boys act as foremen of different departments and as stock and tool keepers. Time slips are made out for each job and costs are carefully figured. The boys are

rated at so much per hour, according to their relative ability.

The idea is to create a shop rather than a school atmosphere. At work the boys wear overalls and aprons, thus further making them "feel" that they are workmen and appreciate how a workman "feels" and a respect for "the man in overalls" is not only fostered in this class but its effect is noticeable among the "regular" pupils of the school. To further create this atmosphere an outside mason, printer, carpenter or electrician is employed from time to time to work with the class.

In the woodworking shop the boys have made twenty saw-horses, forty tool boxes, ten nail boxes, one cement mixing frame, one measuring box, three tampers, twelve bulletin boards, benches for twenty boys, two portable benches, fence around tool room and tool cabinets. The benches are built around the room leaving the center of the room free floor space.

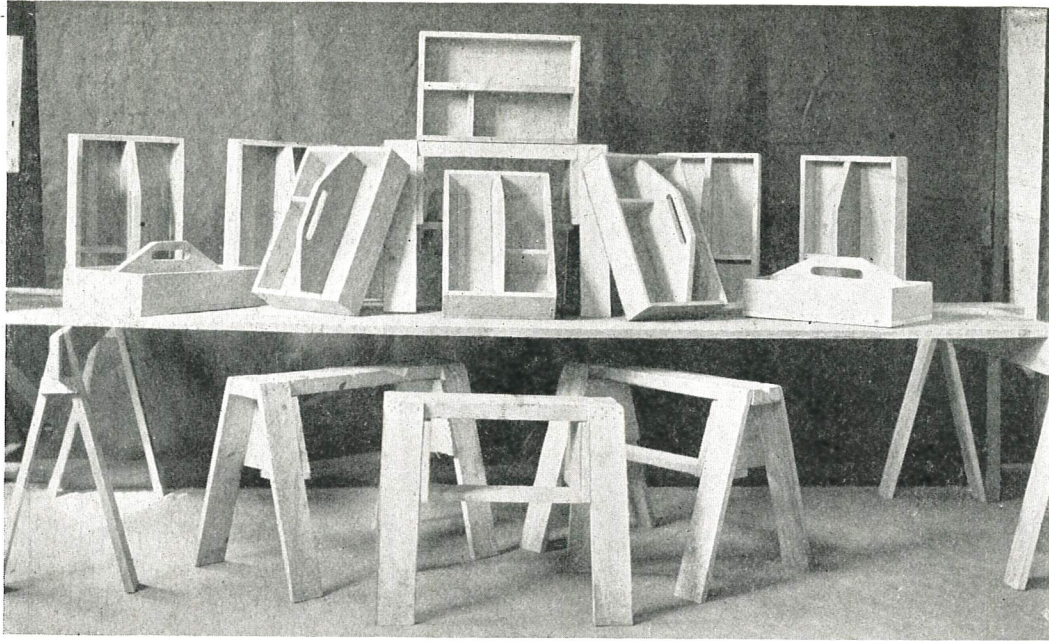
They have made several picture frames, work ticket filing boxes, book racks, shelves, tool racks, and fixtures for the tool and stock room. Letter trays, dictionary stands, taborets, book cases and many small articles of furniture for the classrooms have also been made. They have built a drying cabinet for printing, lead and rule cases, a stand for the printing press, thirty small boxes, some filing cases and also twelve sewing tables for domestic science room and a large cabinet for the principal's office. Many small repairing jobs have also been done by them.

The outside jobs in carpentry include the building of two bicycle shelters 18' by 10', framed, roofed and shingled and enclosed by a picket fence with a swinging gate, a fence and gate at the south end of the school building and another at the north end of the building.

They have painted the shelters, fences and the woodwork in the shop, including refinishing the walls. Benches, bulletin boards, frames, furniture, etc., have been stained and shellaced.

In grading, the boys excavated earth in area 23'x26'x18" deep for the shelter job. Cinders for a foundation for the concrete were put in and graded for drainage.

The concrete work included the mixing and laying of concrete work for the bicycle shelter, 23'x26' marked in squares and smoothed, (twenty-five bags of cement were used for this job) a cement walk at the



TOOL BOXES AND SAW HORSES MADE BY FIRST YEAR BOYS.

north door and another at the south door of the building.

In electrical work they installed a telegraph line to the manual training room and three circuits of lights in the shop, including wiring and all connections for fixtures, etc., providing fifteen lights over the benches and four lights in the tool and stock rooms. Many jobs in electric bell wiring were also accomplished.

For their typographical experience they have printed two hundred booklets, quantities of notices, attendance blanks, tardy slips, spelling lists, arithmetic exercises, name cards, work tickets, report blanks, checks, deposit slips, note forms, receipt forms, greeting cards, three hundred dance orders, teacher's plan books, baseball notices, rules for printing, painting and carpentry and many small jobs too numerous to mention, largely for other school departments.

Before undertaking projects freehand and working drawings are made for use in the shop.

Grouped under business practice is work in estimating and preparing specifications, practice in letter writing, telegrams, bills, receipts, notes, checks, deposit slips, money orders and accounts, making out time cards, cost sheets, orders, etc.

The work in agriculture and metalworking remains to be taken up this year by the advanced group while the beginning group is continuing work in printing, carpentry, electricity, etc.

The plans for agriculture include the erection of hot beds and cold frames and the use of a school garden where practical work in this branch may be carried out.

One of the most interesting indirect results of this work is the steadily increasing respect shown by the other boys and the girls toward the boys of the class dressed and employed as "workingmen" and toward their work. Two important direct results are, considerable work of much excellence, and the development of some boys of apparently little worth into skillful, interested school citizens.



AT WORK ON THE BICYCLE SHELTER.

TYPOGRAPHIC DESIGN

Fred Victor Cann

(Third Article. Title Pages, Dummies, etc.)

Title Pages.



HE designing of a title page is a problem in spacing and requires the highest degree of skill and good taste. If it is a case of the selection of type, and spacing to bring out the meaning of the text, the problem is much easier than to design an original page with hand-made letters and decoration. The student should study title pages in books, magazines, catalogs,—make rough pencil layouts and set in appropriate type. In this way he will appreciate what is meant by a good title page.

There are many different styles in use today. The most common,—the centered page is always satisfactory

ing, in itself an art. We have too much of that sentiment in this country and it is about time that we awake to the fact that we are losing out both artistically and commercially, on account of this same sentiment.

In laying out a dummy there are many elements to consider, as to size, style, illustrations, cost, kind of paper, number of pages, whether the style is to be "stock" or unique, artistic or commercial, style of type, etc.

The making of a dummy requires a high degree of skill and an almost unlimited knowledge of typography. While a rough dummy is sometimes all that is necessary, many jobs require more elaborate, artistic creations, and the laying out of a dummy is an art in itself. The

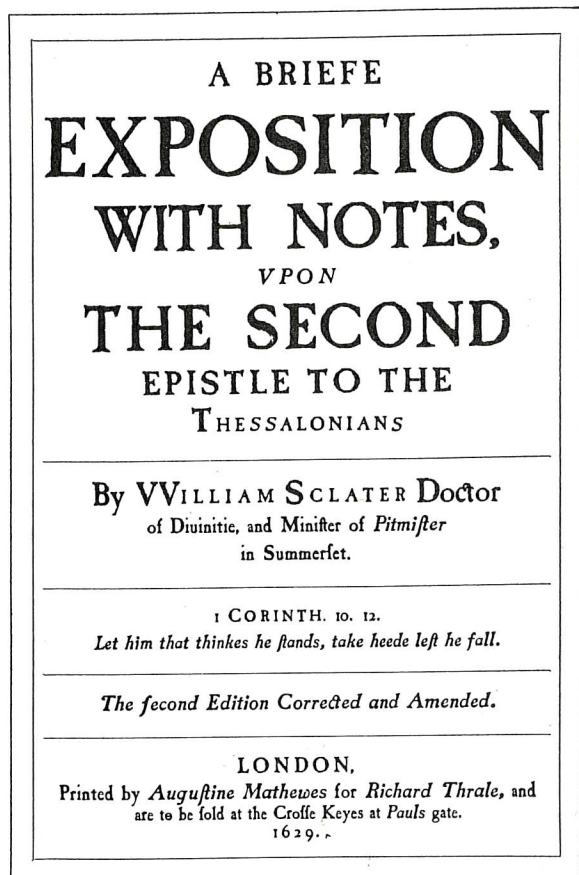


Plate 10. Courtesy of F. M. Morris, "The Book Shop," 171 Madison St., Chicago.

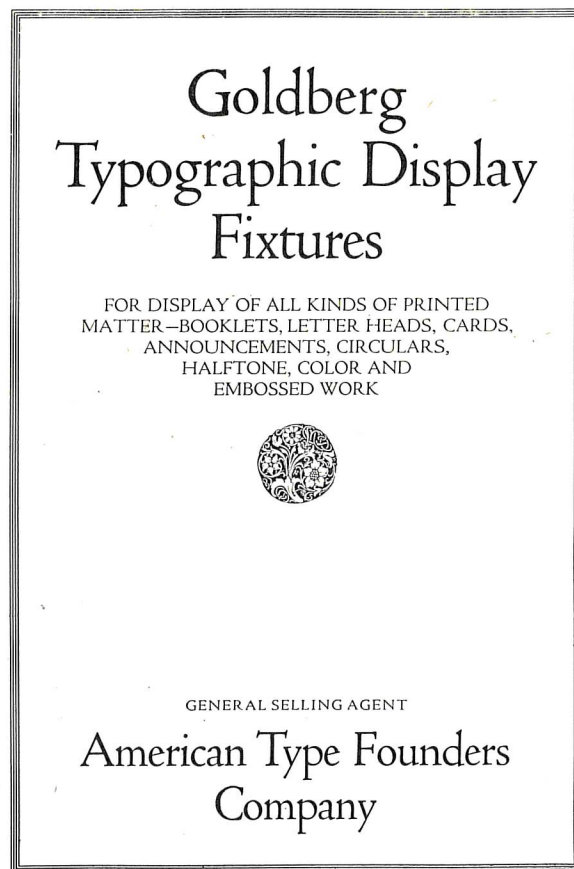


Plate 15.

but not always artistic. The squared is much better, but should be used with discretion. The lined or tabulated page comes into fashion at times. Examples of these, and many more, may be seen in the material furnished. The student should make a collection of examples of good title pages, lettering, and typography; as reference material a good collection is invaluable.

The dummy is a very important selling force, and deserves more space than can be allotted to it here. Very often the artistically made dummy is the most important factor in the sale of printing. We often hear the remark by some of our so-called keen businessmen that "art doesn't pay in business," and while this may be true in some lines of business, yet it is not true of print-

method of doing this is briefly suggested in the accompanying plates, 11-12-13-14-19-20-21.

The book, booklet, or catalog, blank book or dummy is bound, then the copy and illustrations are assembled, and pasted up as nearly like the finished product as it is possible to make the proof copy. Sometimes only a few pages are made up to suggest the style and the general content of the finished product.

An even better plan than the dummy for the printer is the loose-leaf plan. By this method, the pages of the manuscript can be made up and paged, pasted up on stiff, thin cardboard. The copy is then in better form for the compositor, engraver, etc., and is not so liable to be lost as when on thin paper.

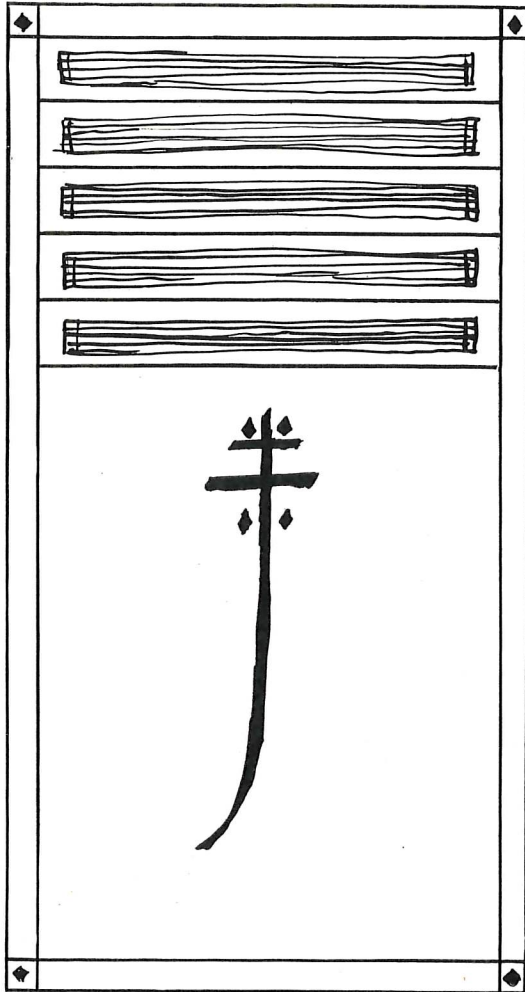


Plate 11. Student's Layout.

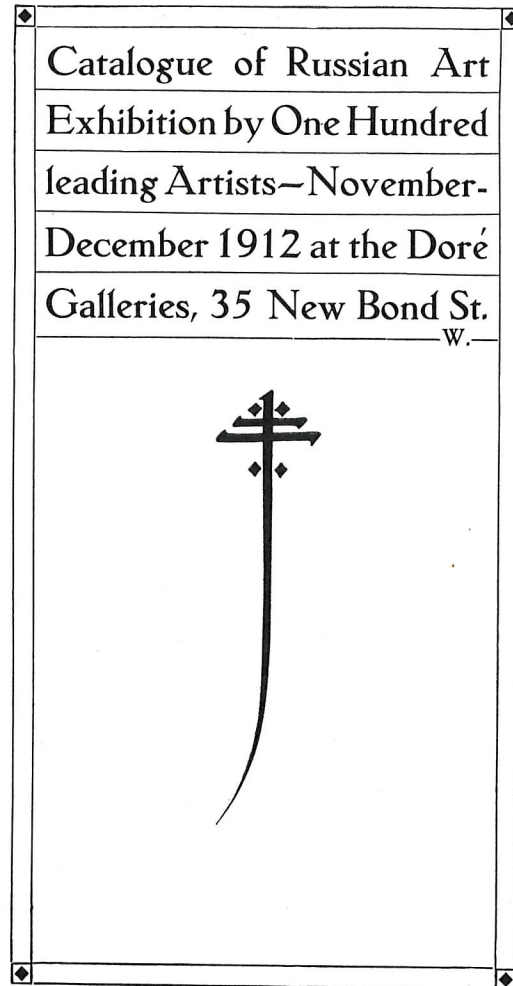


Plate 12. Completed Cover.

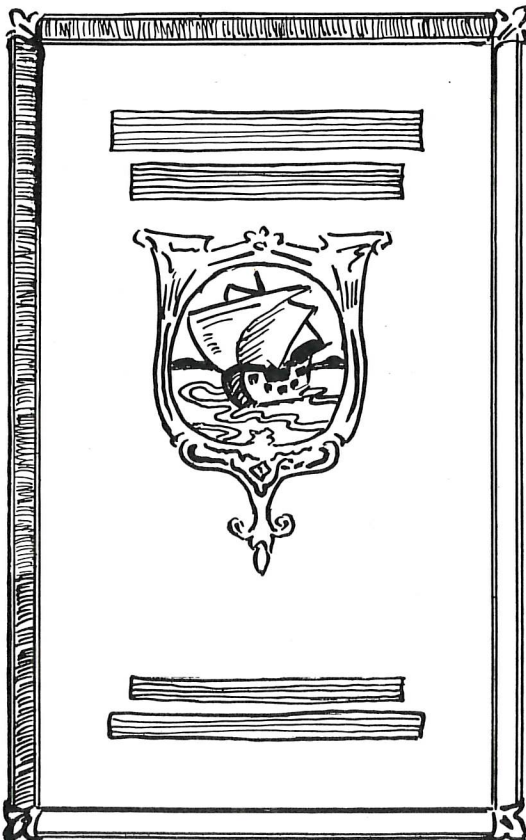


Plate 13. Student's Layout.

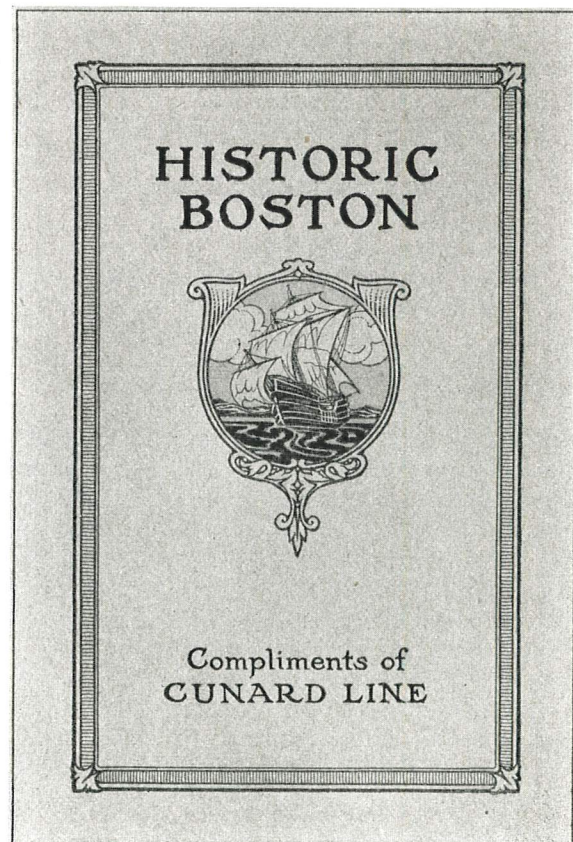


Plate 14. The Completed Cover.

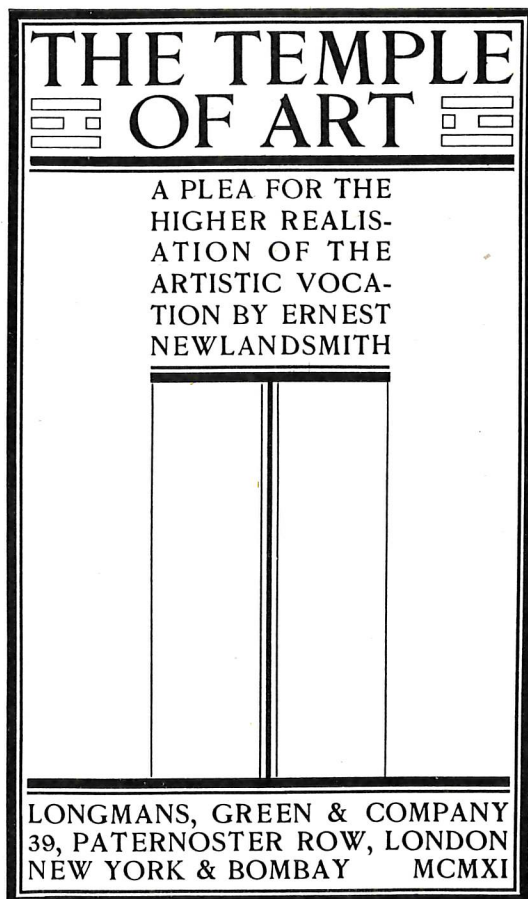


Plate 16.

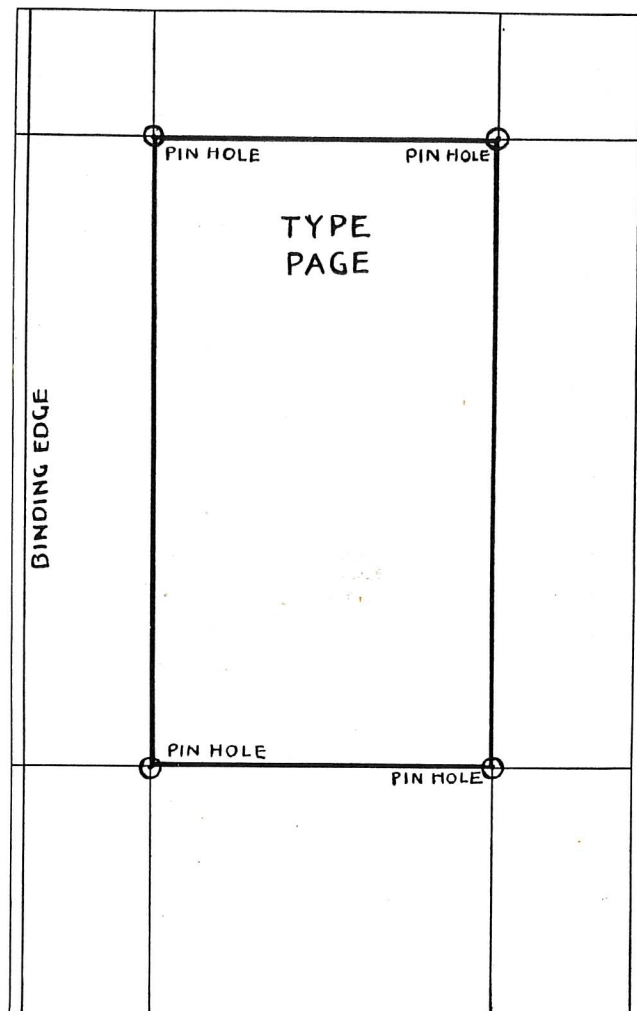


Plate 18. A Dummy.

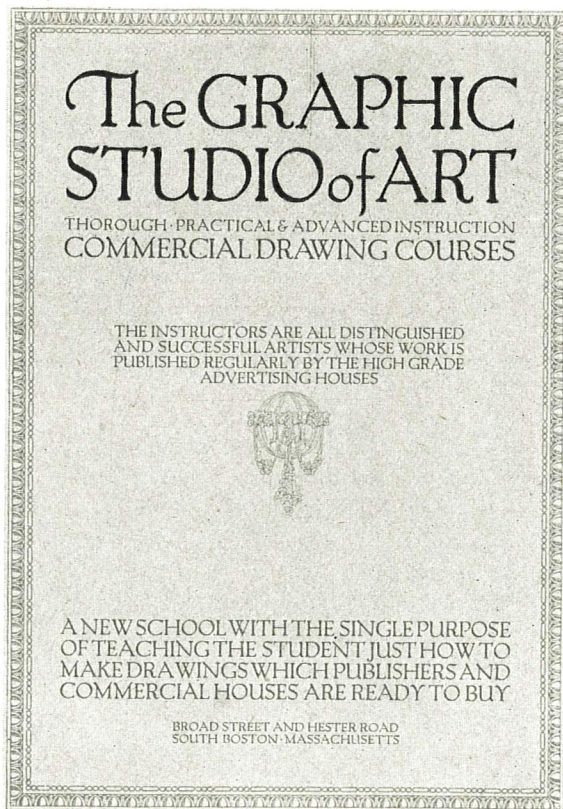
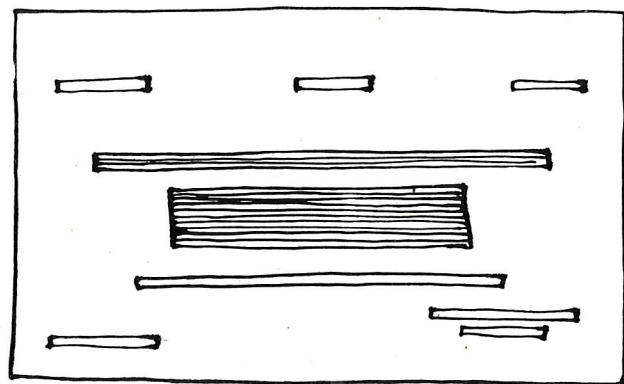


Plate 17.



NEW YORK

CHICAGO

BOSTON

WILLIAMS-LLOYD MACHINERY Co.

ELECTROTYPING, STEREOTYPING
AND PHOTO ENGRAVING
MACHINERY AND SUPPLIES
PHOTO ENGRAVERS' CHEMICALS

WESTERN REPRESENTATIVE, UNITED PRINTING MACHINERY COMPANY

H. B. COLBY

638 FEDERAL STREET
CHICAGO

Plate 19. Student's Dummy and Completed Card.

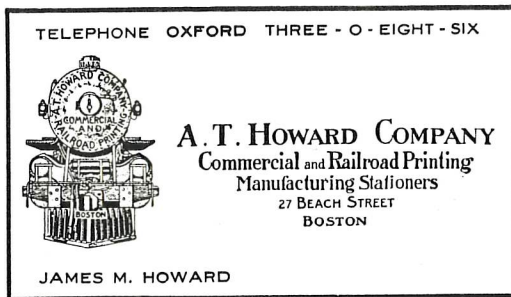
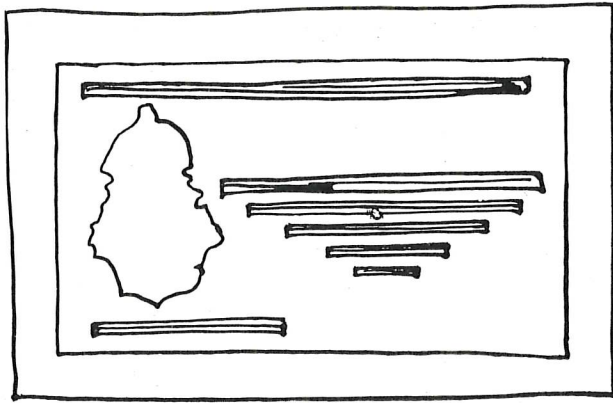


Plate 20. Dummy and Layout for Card. Original in Red and Black.

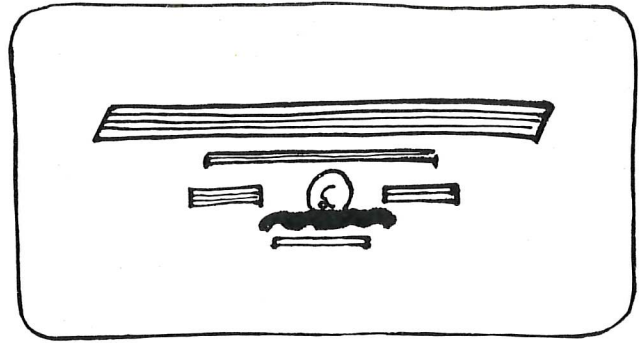


Plate 21. Dummy and Layout for a Hand Lettered Card. Original Printed in Blue and Gold on Linen Finish Card.

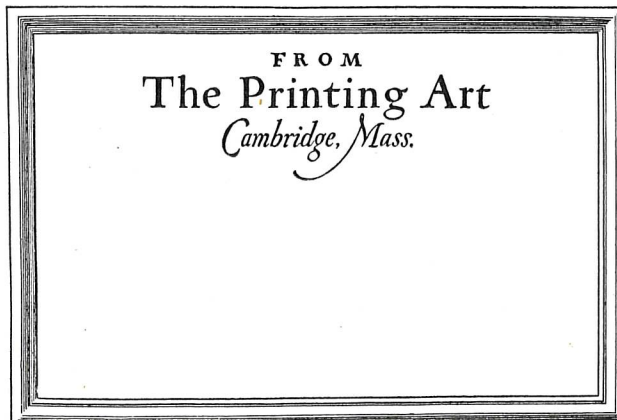
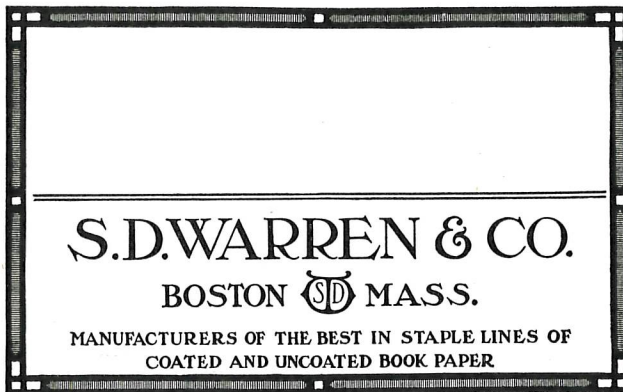


Plate 22. Well Designed Shipping Labels.

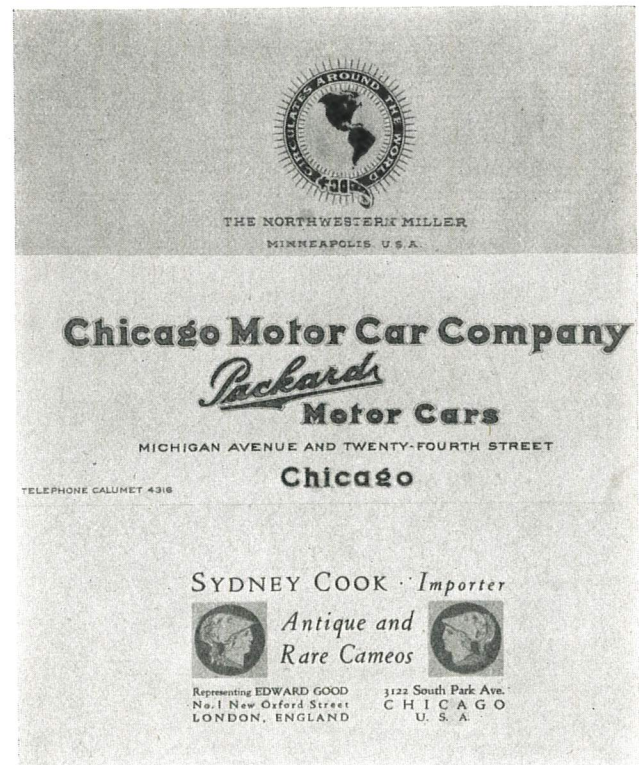


Plate 23. Letter Head Designs.

When laying out a dummy in book form, it is sometimes convenient to plan the first page margins, type page, actual size and prick thru the whole book with an awl, or any sharp instrument, the exact size of all the type pages. This saves a lot of time and insures the

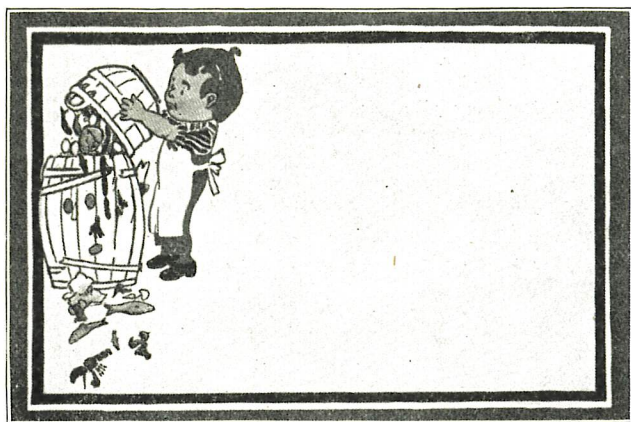


Plate 24. At left, Envelope, Printed in Red and Green on Stock Manila Envelope. At right, Booklet, Printed in Red and Green on White Egg-shell Paper, 6 by 9 inches.

exact size of all the running pages, headings, etc., without measuring each page separately. See Plate 18.

There are many plans and schemes for laying out dummies. The student will find ways and means of his own invention after a little experimenting. There are very few books of help in the making up of dummies, but the teacher may get ideas from old dummies, books, catalogs, etc., to be had in any up-to-date printing shop or library.

Cards, Labels, Etc.

A few layouts for business cards, and good examples of labels, letterheads, billheads and other business forms, calendars and novelties are shown in illustrations 19, 20, 21, 22, 23. No comment is necessary and, owing to lack of space, only a few examples of each are shown. The teacher of printing can easily collect a lot of this reference material with a little effort on his part, and he will find it of incalculable value to him in his work.

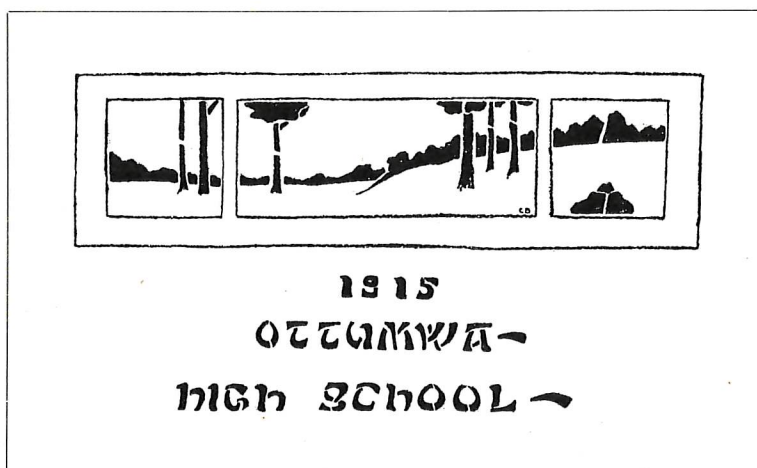


Plate 25. Student's Design for the Cover on a School Souvenir.

INDUSTRIAL-ARTS MAGAZINE

Board of Editors

WILSON H. HENDERSON Milwaukee, Wis.
E. J. LAKE Champaign, Ill.
S. J. VAUGHN DeKalb, Ill.

EDITORIAL

LEARN BY DOING.

It is far easier to formulate principles than to apply them. This is true of teaching and especially true of the teaching of artistic appreciation. Our school instruction in the arts has passed thru the influence of a series of pedagogical theories that have been followed for a time, only to give place to new conclusions. Now comes renewed emphasis by writers of authority on the principle that appreciation must be emphasized *directly* to the pupil by the pupils' *active participation*. Experienced teachers are liable to say that they "knew it all the time." Art Appreciation is most certainly influenced by tasteful surroundings, but M. Cousinet's conclusion that "pictures hanging silently on the walls of the classroom do not necessarily generate a spontaneous appreciation of their merits," is evident to the experienced teacher. This is so because M. Cousinet's conclusions that the child's appreciation of Art is predominantly *realistic* and *dynamic* is evident to the experienced teacher. Children observe objects to learn their use and significance, and that use and significance are impressed by *active participation*. The average child does not meditate appreciably on abstract beauty. Beauty and utility are co-operative in the child's mind, and every effort must have a name, a place, and a purpose to be tangible to the normal child. Teachers have been advised against the "fact method" in teaching, and they have been advised against "silent treatment." There remains the effective method of *doing with a purpose the things to be done* under the *inspiration* and *guidance* of the teacher.

PROMOTERS.

It is an entirely just protest which the earnest, conscientious teacher makes against the constant seeker after notoriety. One frequently hears, and sometimes sees, instances of clamor for publicity thru news items which, when run down, prove to be highly misleading. Occasionally an item appears describing the marvels of a garage, cottage, or other building which some neighboring teacher is constructing as a "practical" problem. Upon investigation, it sometimes appears that such projects never progressed beyond the blueprint stage. Sometimes, it is even found that such an undertaking has merely been "proposed."

Every worthy effort to take some advanced step, and to provide practical and interesting problems for practical work, should be encouraged by every means. But when it comes to "proposing" schemes which are never expected to be carried out, and to pushing a pro-

ject simply to the blueprint stage for the sake of a little cheap publicity, the line between the worthy and the unworthy effort is clearly defined.

There should be some effective way by which such self promoters can be eliminated from the profession.

MANUAL TRAINING MEN AFRAID?

A MAN of some prominence stated at the Chicago meeting of the Western Drawing and Manual Training Association that "manual training men are afraid for the school superintendents to become intelligent with reference to manual training work."

Without stopping to argue that many communities are in no imminent danger of such a threatened catastrophe, we desire to place ourselves on record as taking absolutely no stock in any such palpably erroneous charges.

The one thing for which manual training people almost as a unit have been praying is for greater and more specific intelligence on the part of superintendents with reference to the needs, the significance, and the standards of manual training. Teachers are firm in the faith that intelligence on the part of the superintendents begets sympathy, and sympathy brings consideration and co-operation, and that consideration and co-operation mean more time and less interference, more funds, more and better teachers and equipment, and more appreciation of the results.

TEACHERS OF TEACHERS.

IN looking thru lists of positions newly filled, one finds occasionally that positions in Normal Schools have been filled by people with no breadth of scholarship and but a meager amount of specific training.

Such cases lead one to believe that those who have the selection of teachers are sometimes reactionaries who look upon manual and industrial work as a side issue which may be attended to by any one who can hammer and saw.

It would seem that of all places where thoroly educated and trained people are needed, the school for the *training of teachers* would stand almost at the top of the list. An enlightened public certainly will not long endure the placing of inexperienced persons in positions for the training of experts.

Of course, the salary question arises here as it does at every turn. But again the public and the school administrators must learn that in school as elsewhere, first-class service need not always be expected for fourth-class pay.

Let the positions for the training of teachers be filled with the most competent people procurable, and let the schools and the public wake up to the fact that such people deserve compensation in keeping with their ability.

HONEST EXHIBITION.

THE season of exhibitions is just past, and the teacher of the Industrial Arts has spent much time, energy, and thought on making the annual show. This is the one great opportunity of the year to give the school patrons a visual impression of work well done. In many communities, where the industrial Arts are

well established, a view of the annual exhibition of school work has become a social event which ranks with the graduation exercises in importance. Some energetic teachers have even sent invitations beyond their school districts, and have pronounced their efficiency to their neighbors. This is commendable, and will no doubt have influence toward the promotion of good work.

To be sure criticism is heard of exhibitions in general from a few pessimistic souls, and we realize the inevitable temptation to show only the best; but we believe:

"Tis best to emphasize the best,

And not dishonest to obscure the rest."

Dishonesty lies with deception, and exhibitions of good work does not establish the impression that there has been no poor work done. It establishes the fact that *good work has been done*, and it holds up a standard for future work to be done.

There are, however, a few evidences of dishonesty in some exhibitions seen each year. These marks of dishonesty can be detected by teachers of experience. They consist of copied designs and drawings labeled as original; assembled models that are presented as made by the pupils; exercises made from manufactured patterns and not labeled as such. These are not what they seem, and are, therefore, dishonest. Copying good exercises is often legitimate and desirable in school work, but it would not only be honest but enlightening, to have it labeled as copied.

WHAT OF THE BOYS AND GIRLS?

DURING the past few years we have witnessed in Illinois the strange spectacle of two opposing groups of sincere, intelligent men and women; both groups declaring that their only desire is to benefit boys and girls; each loudly maintaining that it is the more sincere and altruistic, and that it is the proper group to direct the future welfare of the youth of the state. At the same time each group persists in its position that if it cannot benefit the boys and girls by its own particular method it will oppose allowing the other group to contribute to the welfare of the children.

The Chicago Commercial Associations feel that it is for the best interests of the boys and girls to have a system of industrial schools somewhat separated from the traditional schools. Their opponents feel that industrial education is essential, but that it is an inseparable part of universal education and that the welfare of the children demands no separation. In the last legislature the advocates of the Cooley measure presented a bill. The Illinois State Teachers' Association presented its bill, and in order to prevent the enactment of the Cooley measure the schoolmen finally urged that no bills affecting vocational or industrial education be enacted.

While this wrangling has been in progress but not progressing, several hundred thousand children in Illinois have entered and passed thru the adolescent age and have gone into industry unprepared for the struggle.

To a bystander it would appear that there is a large element of selfishness and desire of self-promotion with

a large proportion of pugnacity, arrogance and intolerance in the situation. If either side is sincere in its declarations regarding the welfare of the children and the country, it would seem that there would be an element of concession sufficient to effect a compromise.

ACCURATE INFORMATION REQUIRED.

IN the attempt to promote various types of schools, too many loose statements—statements not based entirely upon facts or conclusions based upon superficial investigations—have been made. In contrast to this practice, the investigations being made in Cincinnati to determine by careful examinations and tests, the effects mentally and physically of industrial life upon growing children, are to be heartily commended.

If after careful investigation it can be definitely proved that placing 14-year-old children in industry has a demoralizing or deteriorating effect either mentally or physically upon the children, there will then be sufficient basis for demanding that such children shall not enter industry.

Courts have repeatedly ruled that all persons under 21 years of age are wards of the state and as such are under the care, guardianship and control of the state. In some states there are statutes to the effect that any parent or guardian or person having control of any child, who, when able to do so, wilfully neglects to do that which shall prevent the child's delinquency, or to remove the conditions which render the child delinquent, shall be deemed guilty of a misdemeanor. Under the circumstances, the state, the self-appointed guardian of all the children of the state, would be compelled by its own laws to forbid such employment.

LABOR OPPOSES SCHNEIDER AND WIRT.

At a recent meeting of the Central Trades Union Council of New York City, resolutions addressed to the Board of Education, expressing opposition to any extension of the work of Dean Schneider of Cincinnati, and Superintendent Wirt of Gary, until a survey has been made of the industries and schools of the city. The resolutions request that such a survey be made thru co-operation with the U. S. Bureau of Labor Statistics.

Attention of the Board of Education is called to the fact that the state law provides that advisory boards must be consulted in regard to vocational work in the schools, and reminds the Board that such boards have not been appointed. Representation of trades unions on such advisory boards is strongly urged in the resolutions. A fear is also expressed that trade extension work is being given to children under 14 years of age.

It seems to me if we wish to realize the ideal of a great and harmonious art, which shall be capable of expressing the best that is in us: if we desire to raise great architectural monuments, religious, municipal or commemorative, we shall have to learn the great lesson of unity thru fraternal co-operation and sympathy, the particular work of each, however individual and free in artistic expression, falling naturally into its due place in a harmonious scheme. Let us cultivate our technical skill and knowledge to the utmost, but let us not neglect our imagination, sense of beauty, and sympathy, or else we shall have nothing to express.—*Walter Crane.*

HOW IT WAS DONE!

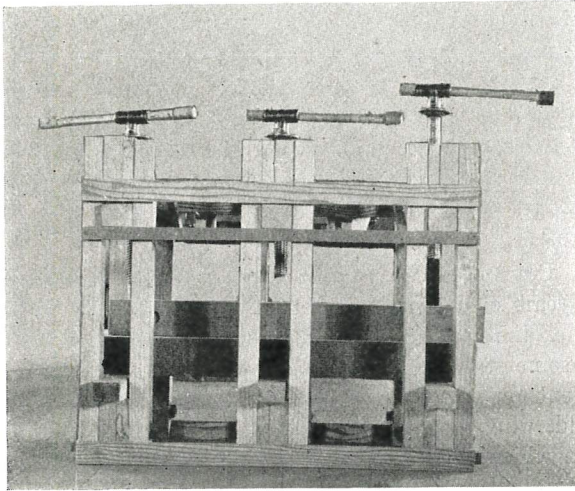
The purpose of this Department is to present monthly a wide variety of shop projects which have been actually worked out in elementary, high, trade and continuation schools. Contributions are solicited and will be paid for—THE EDITORS.

A VENEER PRESS.

Clarence T. Mudge, Supervisor of Manual Training,
Eugene High School, Eugene, Ore.

AN article on the use of veneer published in a recent issue of the INDUSTRIAL-ARTS MAGAZINE, suggests the possible interest of teachers in a veneer press in use in the Manual Training Department of the High School at Eugene, Oregon.

The drawings and photographs explain themselves. The press is made of Oregon fir, but I should recommend



VENEER PRESS, SIDE VIEW.

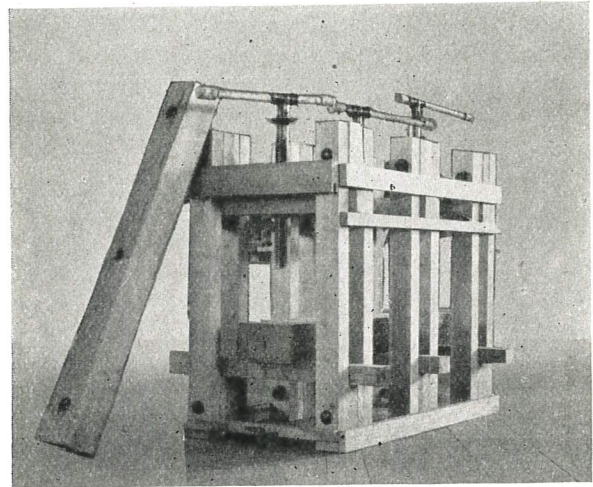
the use of ash or oak. I have calculated that the press exercises a pressure of about five tons with a hundred pound pull on the hand screw bars. In practical use, the press will clamp satisfactorily four table legs at a time.

The writer is a firm believer in the use of veneer in the high school shop. It has been used in the Eugene High School for some time. Lumber is purchased in inch stock and is re-sawed at a local mill. This is a great advantage as it gives an opportunity to match the boards and to obtain many pleasing effects.

A CEDAR CHEST.

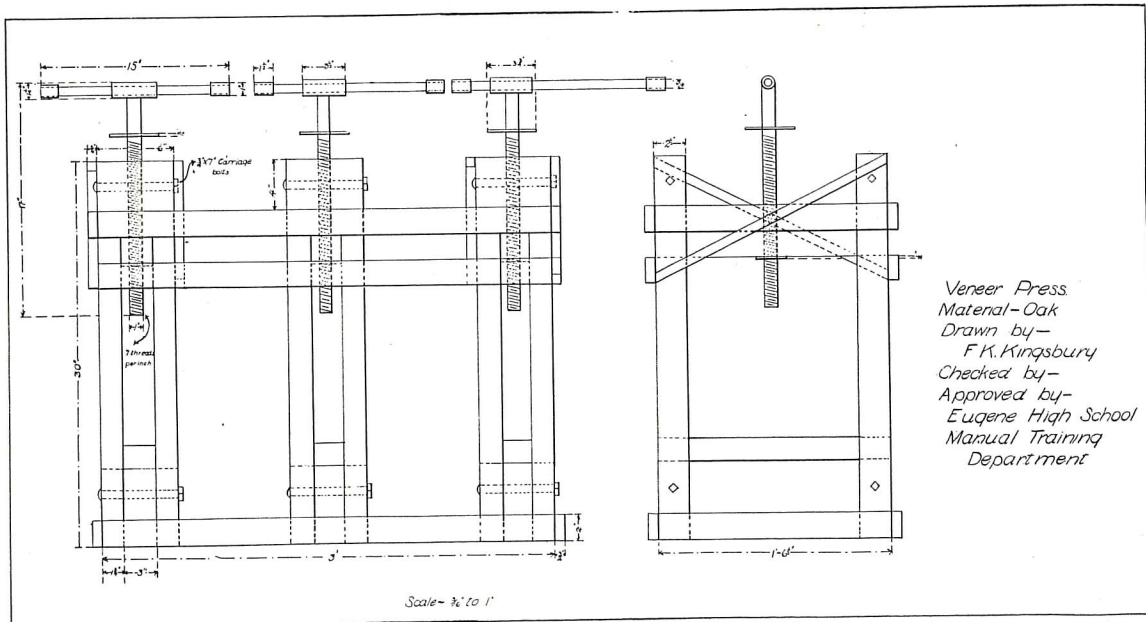
By H. W. Anderson, Cedar Falls, Ia.

THIS cedar chest is of simple, easy construction and plain in design. The rather severe lines are in marked contrast to the usual commercial cedar chests foisted on the public with their corners sawed out in meaningless curves and a surfeit of copper trimmings tacked on, forming at the best a bizarre conglomeration. The girls in a high school will enjoy making this project or it can be



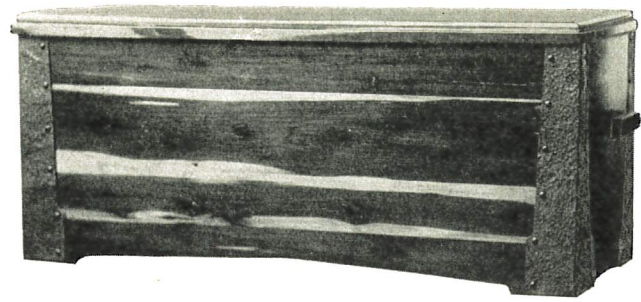
VENEER PRESS, END AND SIDE VIEW.

made in oak to be used as a "Hope Chest." The list of material is outlined and the cedar should be Tennessee red cedar because of its lasting aromatic qualities. Sort out and pick the best lumber for the top, front and ends. If the chest is to be made of oak obtain white quartered oak, well seasoned. Saw the pieces to length and joint the edges carefully. Glue and clamp the several pieces which make up each side, together. When the glue has set scrape off the surplus glue and plane the surfaces. The plane must be set for a very light cut as cedar is full of knots and the grain is very contradictory. Scrape and sand



PLAN FOR VENEER PRESS FOR SCHOOL USE.

after planing. Square each side of the chest up to the right length. Lay out the curve at the bottom of the front, back and ends. The best way to cut the $\frac{1}{2}$ " arcs at the end of this curve is to clamp the front and back together edge to edge and with a 1" bit bore a hole, starting the spur where the pieces come together. The ends can be treated in the same manner and the rest can be cut out on the hand saw. Fasten the cleats which are to support the bottom in place on the front and back so the lower edge of the cleat is $1\frac{1}{8}$ " from the lower edge of the front and back. Use three $1\frac{1}{2}$ " screws in each cleat. We are now ready to nail the front and back to the ends. Holes must be drilled thru the front and back for the nails, otherwise the nails would split the wood. A nail of the size to be used will serve as a drill. Set the nail heads. When the nailing is completed fasten the end cleats in place with two $1\frac{1}{2}$ " flathead screws in each cleat. Fit the bottom in place and fasten in place with two $1\frac{1}{2}$ " screws thru each cleat from below. A block of wood $\frac{1}{2}$ " square is screwed in each lower corner for the gliding casters which are then fastened in place. The top will next require our attention. Round the edges according to the detail and cut the pieces, which are to form the rim around the edge to the section shown in the detail. As this rim cannot be carried around at the back it will be necessary to have a piece $\frac{1}{2}$ " by $\frac{3}{8}$ " in its place. The rim is to be mitered at the corners and glued at the top. Fit the hinges and lock and screw them in place. Make the handles according to the detail gouging out as shown. The chest should now be sanded thoroly. There are two finishes which can be applied, the bright polish and the wax finish. For either of these finishes the chest should be oiled with linseed oil and a coat or two of shellac applied. The shellac should be rubbed down with sandpaper and steel wool. For the dull finish a couple of coats of wax are applied and rubbed down. This makes a very suitable finish and differentiates it from the ordinary cheap cedar chests found in the furniture stores. For the bright finish apply two coats of good varnish after shellacing and rub the first coat down with curled hair or hair cloth and the second with pulverized pumice stone and raw linseed oil. Then rub with pulverized rotten-



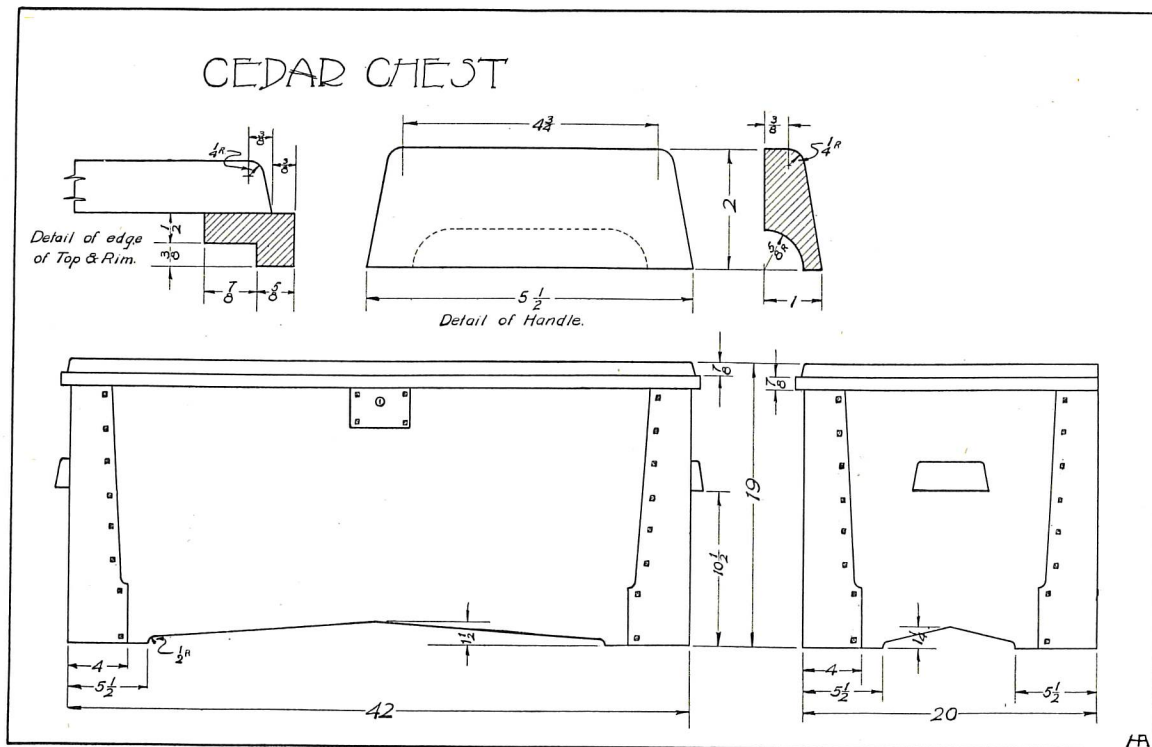
CEDAR CHEST

stone and oil using a piece of flannel. Finish the handles and screw them in place with three $1\frac{1}{2}$ " screws in each.

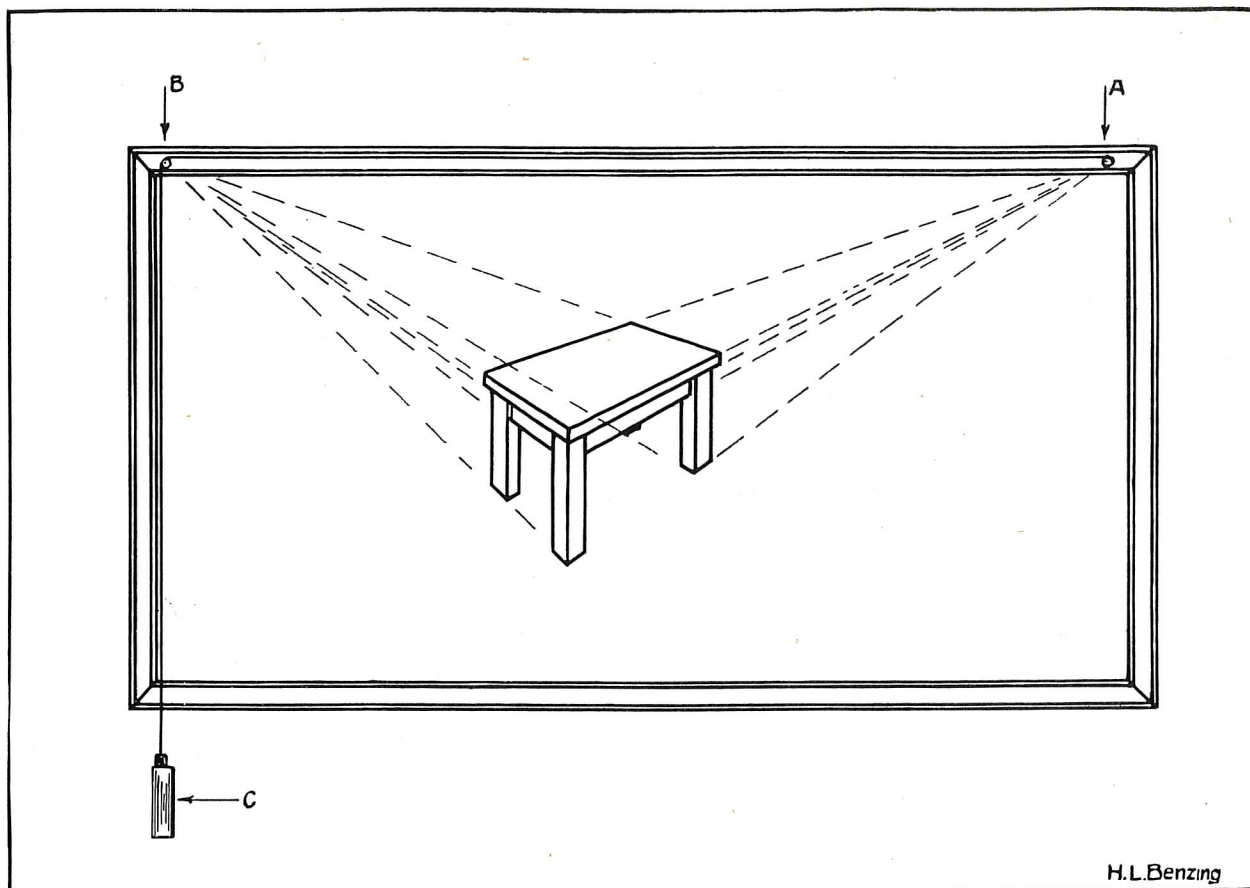
We can now turn our attention to the copper corners and the escutcheon plate. Hammer-mark the plates, before cutting to size, using the ball end of the hammer. This may seem quite a task to hammer-mark four big plates but will well repay the time and trouble taken. Avoid letting the plates get too badly out of shape during this process by turning them over and pounding them with a mallet. In cutting the plates make a paper pattern and mark around it on the back of the plate. Cut to the line and smooth the edges with a file and emery cloth. The escutcheon plate is also hammer-marked and the style of lock used will determine the size and location of the key hole. A nail set can be used to punch the holes for the tacks. These holes can be punched from the back side of the plate as it will leave the back smooth and the rough edge left by the punch will be covered by the head of the tack. Bend the corner plates by putting them in the vise between two boards and pound them over with a mallet. Polish the plates with powdered pumice stone and water and tack them on using a wooden mallet to drive the tacks in place. The chest should now be complete and ready for its contents.

Bill of Material.

- 36 Board Ft. Cedar 4" and 6" widths.
- 3 $2\frac{3}{4}$ " Antique Finish Butt Hinges.
- 1 Chest Lock.



DRAWING FOR CEDAR "HOPE" CHEST.



PLAN FOR ILLUSTRATING PERSPECTIVE.

- 4 Pcs. 18 Ga. Copper 8" x 17".
- 1 Pc. 14 Ga. Copper 2½" x 4".
Escutcheon Plate.
- 72 Square Head Antique Finish Tacks. Orr & Lockett
Catalog No. 1465.
- 4 Gliding Casters.
- 2½ doz. 1½" Flathead Screws.

A SIMPLE METHOD OF ILLUSTRATING TWO POINT PERSPECTIVE.

By Herbert Benzing, Student, Oswego State Normal School.

PERSONS who have had to demonstrate two point perspective on the blackboard will appreciate the simple method.

This system consists of a chalk line, weight, and pulley, is inexpensive and also very efficient.

For vanishing point A a nail or plug is inserted in the frame of the blackboard, the vanishing point B is a suitable pulley fastened in some convenient way. A chalk line is strung thru B from A and attached to the weight C which is of sufficient weight to return the line to the top of the board. This line should be long enough to allow it to be drawn to the bottom of the board between A and B.

To make a drawing first erect the center (or vertical line) with a straight edge. On this line lay off your vertical measurements, then by pulling down the line from the top of the board and holding it on these points it will give you the line of true perspective.

To transfer these lines to the board, chalk the line the required length and snap it against the board. This will give you guide lines that will guide your straight edge and yet will be light and easy to remove where not required.

FINISHING A LATHE JOB IN THE DRILL PRESS.

Frank Moeser, Director Industrial Education,
Waverly, N. Y.

THE old saying that "necessity is the mother of invention" applies to school shops as well as to the every-day

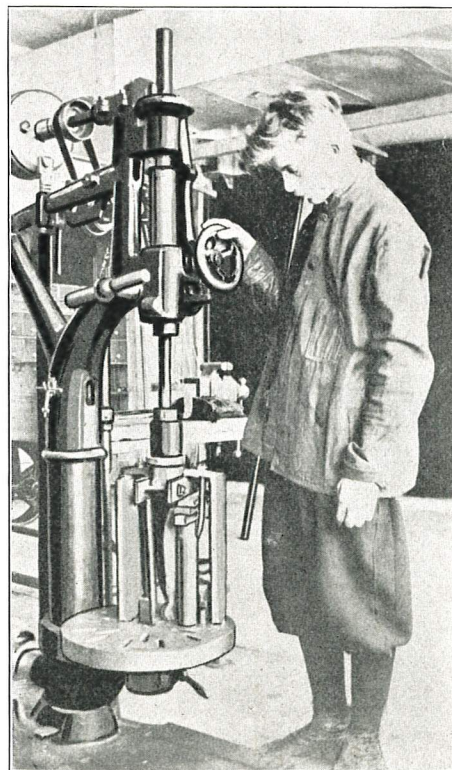
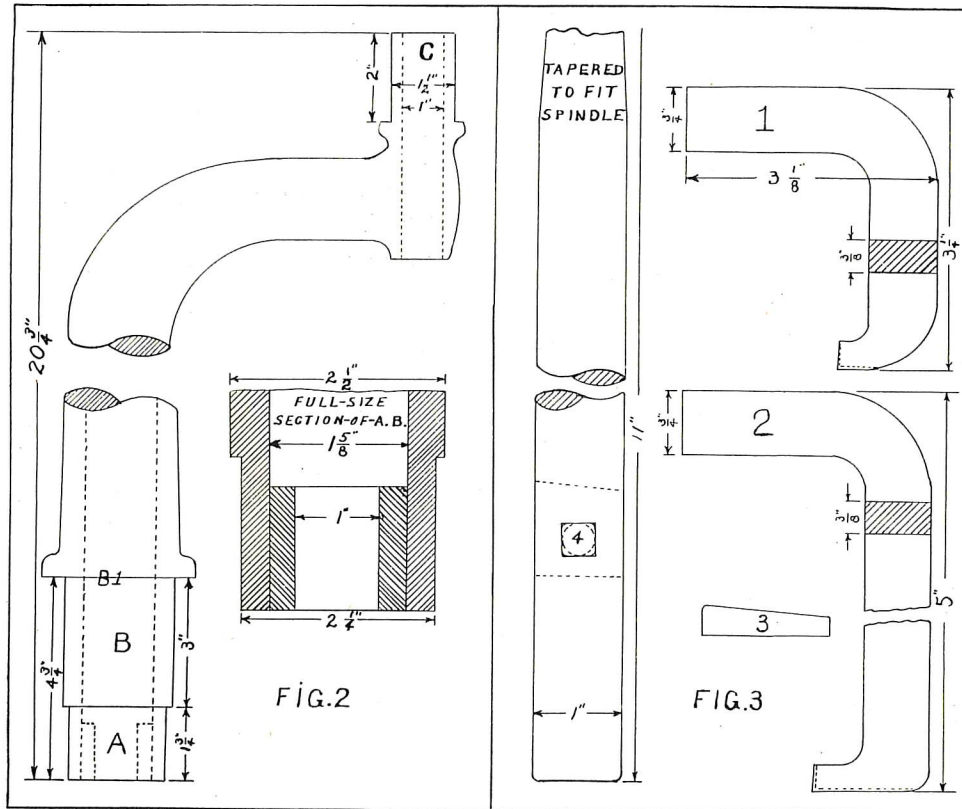


Fig. 1. The Job in the Press.

commercial shops. The accompanying photograph shows how we were able to finish a casting, in the drill press, which ordinarily would be done in a lathe.

The castings of which a sketch is shown in Fig. 2 is the main frame for a 10" sensitive drill press which my students are building. The part, A-B, had to be machined to receive the table support and the base. The distance from center of A-B to outside of C is eight inches. The largest lathe in our shop would not swing this distance over the ways.

A boring bar was turned down in the lathe to the dimensions shown in Fig. 2, one end of which was fitted into the drill press spindle. A rectangular slot $\frac{3}{8}$ " by 1" was then drilled and filed out to receive the cutters 1 and 2. One side of this slot was $\frac{1}{8}$ " longer than the other in order to correspond with the tapered key (No. 3, Fig. 2)



Figs. 2 and 3.

which held the cutter in a rigid position. The set screw (No. 4) prevented the cutter from slipping and also aided in adjustments.

A cast iron plug was fitted and driven into the cored hole in the end of the casting before it was set in position on the drill press table. After squaring up and securing the frame in a rigid position the hole in the plug was drilled and reamed.

The boring bar was then inserted into the spindle and with the use of cutter No. 1 work was started. After finishing surface A of casting, cutter No. 2 was used to finish surface B and face B1.

This end of casting being completed, it was set in the base and surface C was finished in the same manner.

MINNEAPOLIS BEGINS INDUSTRIAL EDUCATION SURVEY.

For the purpose of determining just what kinds of industrial education will best meet the needs of her present and future workers, the city of Minneapolis has begun an exhaustive analysis of both her trade and school conditions, which it is expected will take about seven months to complete.

In the analysis which is being made industries are

reduced to occupations and occupations to operations. The investigation seeks to find (1) to what extent the worker can "get on" in his job; (2) to what extent the city's industries may give special training which they do not now provide; (3) to what extent can the schools be a factor.

The Survey is under the direction of a committee from the National Society for the Promotion of Industrial Education, of which Secretary of Commerce Redfield is president. The director of the Survey is C. A. Prosser, Secretary of the National Society, and the members of the Committee are C. R. Richards, Director Cooper Union, Chairman; Leonard P. Ayres, Director Division of Education, Russell Sage Foundation, New York; F. E. Spaulding, Supt. of Schools, Minneapolis; Chas. H. Winslow, Expert, Bureau of Labor Statistics, Washington;

Mrs. Mary Schenck Woolman, Specialist in Industrial Education for Girls, Boston.

This Committee will receive the closest co-operation and support from the Minneapolis school board, the Dunwoody Industrial Institute, the Minneapolis Art Institute, and the Civic and Commerce Association, each of which has detailed members of its force to work under Mr. Prosser's direction. From other cities are Miss Cleo Murtland, Assistant Secretary of the National Society for the Promotion of Industrial Education; Wilson H. Henderson, of the University of Wisconsin, and Miss Jeanette Eaton of New York City.

An analysis of the flour and grist mill industry, describing the various operations of flour manufacture, the organization of a mill, and the training and education which is demanded by workers in the various departments of a mill, has been completed. As milling is the chief industry of the city, this analysis will form an interesting part of the survey report.

It is estimated that the cost of the survey will not be less than \$15,000. The findings and recommendations will furnish the basis for a large part of the discussion at the annual meeting of the National Society, which will hold its next convention in Minneapolis in January, 1916.

NEW BOOKS AND PAMPHLETS

The Lesson in Appreciation.

By Frank Herbert Hayward. 234 pages. Price, 75 cents, net. The Macmillan Company, New York.

In the preface to this book Dr. Bagley says: "Shall we protect our children against the cheap, the tawdry, the suggestive and the degrading in art and music? Then *teach* the *appreciation* of good art and good music in the schools."

The subtleness of appreciation as a mental process, and the best method of leading school pupils to appreciate, is much in the minds of conscientious teachers. This book is an attempt to specify methods of cultivating appreciation for music, poetry, and art. As may be expected by the Industrial Arts teacher, evidence of the best method to cultivate appreciation lies in the fact that beauty and utility are closely related. "The important point for the teacher is that he should not ignore in the interests of fine arts the claims of the applied arts."

On the other hand, "The facts of life go to show that appreciation has to be *taught as such*, at some time or another." "It is not an inevitable product or by-product of life experience, or even of specific training in art." These quotations from this interesting and instructive little book suggest the interest the book should have for Industrial Art teachers.

Food and Cookery.

By Martha L. Metcalf. 300 pages. Indianapolis Industrial Education Co., Indianapolis, Ind.

This is a student's manual with an abundance of text matter and illustrations. Following each main topic discussed are blank pages for students' reading notes, references, laboratory data, etc. The book is well arranged, well written, and contains much practical and usable material.

King's Series in Woodwork and Carpentry.

By Chas. A. King. American Book Company, New York, Cincinnati, Chicago.

The series consists of the following six volumes: Elements of Woodwork, Elements of Construction, Elements of Woodwork and Construction, Constructive Carpentry, Inside Finish, and a Handbook for Teachers.

The volumes place before us in concise, compact, readable form the facts, tools, and processes of woodworking from the tree in the forest to the finished woodwork in the modern home. The subject matter of the books is easily adaptable to the needs of the various kinds and grades of manual training, vocational, and trade schools. The books are well illustrated, well printed, and tastefully and durably bound. We predict that the already wide use of King's Series will be justified and enlarged by the service which the books undoubtedly are rendering.

Type Models in Wood Working.

By A. P. Laughlin. 16 pages. Price, 25 cents. Published by the Author, Peoria, Illinois.

This booklet contains working drawings and halftone illustrations of fifteen models which Mr. Laughlin has found very satisfactory. There is a page of suggestions to teachers, followed by three pages of brief, clear, well organized lesson plans. One side of each sheet is left blank which makes it possible to use the book as a class notebook in addition to its use as a manual or guide. It is an interesting booklet which will be of service to manual training teachers.

Vocational Mathematics.

By William H. Dooley. 341 pages. Price, \$1.00. D. C. Heath & Company, Boston, New York, Chicago.

This textbook preserves the regulation course in mathematics and supplements it with a large amount of practical work. The first part of the book consists of a com-

prehensive review of arithmetical principles and processes. Following this are 24 pages devoted to carpentering and building, board measure, putting of materials, etc. This is followed by problems on sheetmetal work, bolts, screws and rivets; shafts, pulleys and gears; plumbing and hydraulics; steam engineering, electrical work, mathematics for machinists, and textile calculation. The appendix gives several useful tables, graphs, formulas, etc.

The work is thoro and is directly applied to the subject under discussion. The book may be used to advantage by the teacher of either academic or shop work.

The Silk Arithmetic.

By Raleigh Weintrob. 47 pages. List price, 25 cents. Parker P. Simmons Co., Inc., New York City.

This interesting little book is intended as a supplementary text for the fifth, sixth, seventh and eighth school years. It has a number of original features; it deals with the silk industry only—every one an actual problem taken directly from the factories. The explanations of processes are very clear and presented in an exceptionally interesting manner. To children interested in the manufacture and distribution of silk, the book will prove of great interest and will assist materially in a thoro understanding of the silk industry.

Profitable Vocations for Boys.

By E. W. Weaver and J. Frank Byler. 12mo, cloth. Price, 75 cents, net. The A. S. Barnes Company, New York and Chicago.

Persons who are attempting to guide young people into paths of profitable employment will welcome the appearance of this volume. It presents, insofar as possible, a brief summary of the available information relative to the conditions for admission to the principal gainful occupations, and presents in various forms the methods by which workers may advance themselves. A brief survey is made of the principles by which the young person should scrutinize various industries, determining for himself the elements which fit or unfit him for various occupations. Following this, the authors have given detailed studies of a few leading industries, and have reviewed others very briefly.

One unique feature of the book is the provision which has been made whereby clippings and detailed information concerning any of the topics treated may be obtained from the publishers free of charge.

Some Continuation Schools in Europe.

By Edwin G. Cooley. 47 pages. Published by The Commercial Club of Chicago.

This book describes the organization of the industrial continuation schools of Crefeld, the pre-apprenticeship schools of London, and the Scottish system of continuation schools.

These three articles are reprinted from "Vocational Education."

Mechanical Drawing.

By Philip W. Hutton. 176 pages. Scott, Foresman & Co., Chicago and New York.

The author has attempted to bring together groups of exercises and fundamental and essential conventions needed by those who expect to engage in various lines of industrial work. These are for the most part involved in practical problems in such lines as woodworking, sheetmetal work, electrical work, plumbing, etc.

Mr. Hutton is a man of practical experience in the trades and is a successful teacher. In this work he has set before himself the following purposes, to quote from the preface: (1) To arrange a course especially adapted to, and within the limit of, a boy's ability; (2) To give the boy an intelligent idea of what a mechanical drawing

is for, how to make it, and how to read and work from one made by others; (3) To awaken an interest in the common industries of life, and to create a desire for as complete an education along industrial lines as possible.

Wireless Bulletin of the Somerset, Ky., High School, Somerset, Ky. An interesting example of school printing, describing the wireless outfit manufactured and operated entirely by the members of the senior class of the Somerset High School.

Art and Industrial Work in the German Schools. By James P. Haney, Director of Art in High Schools, New York City. Issued by the Educational Department of the City of New York. This report was made some two years ago by Dr. Haney who was given a five months' leave of absence to study the industrial art teaching of Germany

and Austro-Hungary. Coming at this time, the report has especial interest, when many of the art schools which it describes have had their work partially or wholly interrupted by the war.

The purpose of Dr. Haney in making this report was to study those phases of Continental work which could be directly used to promote the work in the art department of the New York City high schools and in the art department of the New York University Summer School, which is also under his direction. Many of the best suggestions from the Continental schools Dr. Haney has already introduced in the various New York City high schools, and particularly, in the industrial art courses in the Washington Irving High School, whose graduates' work recently attracted much attention when exhibited in the Woman's Industrial Art Exhibition at the Grand Central Palace.

BRIEF ITEMS OF INTEREST

CHOICE OF VOCATIONS IN KANSAS HIGH SCHOOLS.

A SUMMARY of returns made to Mr. F. R. Aldrich, Russell, Kansas, has been recently made public. Mr. Aldrich in the spring of 1914 sent an inquiry to 24 high schools in the State of Kansas asking how many boys and how many girls had made a choice of vocation before leaving the high school. The schools reporting were: Brookville, Brownell, Caney, Cedarvale, Cherokee County, Clay County, Coffeyville, Galena, Garnett, Great Bend, Hiawatha, Humboldt, Iola, Jetimore, Junction City, Kiowa County, La Harpe, Leavenworth, McPherson, Osborne, Parsons, Russell, Thomas County, and Wichita.

Number of pupils reporting: Boys, 1497; Girls, 2263; Total, 3760.

Number who have chosen vocations: Boys, 763; Girls, 1299; Total, 2062.

Number who have not chosen: Boys, 734; Girls, 964; Total, 1698.

Classification in High School.

	Boys	Girls	Total
1st year	589	825	1414
2nd year	381	604	985
3rd year	293	493	786
4th year	233	348	581

Year choice was made.

	Boys	Girls	Total
Grades	252	530	782
1st year	220	391	611
2nd year	157	202	359
3rd year	113	135	248
4th year	66	71	137

Number of pupils now taking work in high school preparatory for vocation.

	Boys	Girls	Total
1st year	140	249	389
2nd year	105	205	310
3rd year	91	215	316
4th year	82	157	239

Influences which led pupils to make a choice of a vocation.

	Boys	Girls	Total
1. Natural tastes	529	860	1399
2. Parents	398	806	1204
3. Desire for money.....	365	637	1002
4. Love of knowledge.....	252	529	781
5. Friends	245	432	677
6. Teachers	208	461	669
7. Books	222	403	625
8. Desire for travel.....	151	255	406
9. Schoolmates	78	195	273
10. Desire for adventure.....	99	108	207
11. Desire for easy life.....	91	85	176

	Boys	Girls	Total
Number of wage earners in school year	765	293	1058
Amount earned	\$53775	\$9590	\$63365
Number of vacation wage earners	1001	365	1366
Amount earned	\$74713	\$10988	\$85701

Standing of students in school.

(Vocations chosen.)

	Boys	Girls	Total
Excellent (90-100)	86	222	308
Good (85-90)	290	569	859
Fair (75-85)	334	431	765
Poor (below 75)	42	61	103

(Vocations not chosen.)

	Boys	Girls	Total
Excellent	45	105	150
Good	236	400	636
Fair	376	384	760
Poor	67	73	140

INDUSTRIAL ARTS IN THE CANAL ZONE.

(The following is an extract from a letter to Professor F. G. Bonser of Teachers College, New York, from A. E. Edgerton, who is in charge of the industrial work in the Canal Zone in Panama.)

It is impossible for those not familiar with government work to appreciate thoroly the slow, but careful manner, in which new work is authorized and actually started. However, when the work is once begun the rapidity with which it is developed easily makes up for the slowness at the beginning. Until Feb. 13, 1915, our plans for industrial and vocational courses had not been approved, even in part, meaning that about all I had actually accomplished was the placing of ten high school boys in the commissary stores thruout the Isthmus. This plan gave the boys an opportunity to work a few hours of each school day, on Saturdays, and during vacations as salesmen, assistant salesmen, and checkers in the various government stores, providing they were doing well in their school work. It is interesting to note that we have recently extended this privilege to the eighth-grade boys because of the satisfactory results of the plan. Both the storekeeper and the teacher send me monthly reports on special forms, so we have a good line on what the boy is doing inside and outside of school.

Since early in February we have opened an apprentice school for boys, both native and American, serving in the government shops as machinists, carpenters, patternmakers, plumbers, boilermakers, pipe fitters, and electricians. There are 24 of these apprentices who meet at the centralized school for two half-days of four hours each, thruout the four years served in the trades, receiving full pay for time spent at school as well as while at work. The

subjects offered to these boys are mathematics, mechanical drawing, mechanics, industrial English, and studies in shop problems. A graduate from Kansas University and I are the only instructors at present.

In connection with the public schools, we have built a one-story building for industrial work in the vicinity of our main high school, near the Pacific side of the Isthmus. Shop work and mechanical drawing are here centralized for the seventh and eighth grades and high school boys. The girls in the seventh and eighth grades are given sewing while the boys are at the industrial school. Both Mr. Long, the Superintendent of Schools,

be hard on all parties concerned. It is for this reason that I wrote the article as I did. I am hearing the best of reports from it, as well as some criticisms, and I'm as glad that I wrote it as I am that you were willing to print it.

I once made a talk on Manual Training in a town of about two thousand inhabitants. At the close of what I said, an enthusiastic old bachelor got up in his place and said that he would give \$1,500 to equip a Manual Training school in the town. There was great applause, and I thought I had started a good thing. The school directors accepted his offer, and shortly after they went to a city



Grade Boys' Work, Manual Training Department, Saginaw, Mich. Mr. Will J. Craig, Teacher.

and I have worked hard to get the elementary schools reorganized to include industrial arts, but we still have that possibility to look forward to.

A. H. Edgerton.

Balboa Heights, Canal Zone, April 25, 1915.

OVER-EQUIPPED AND UNDER-TAUGHT.

(The following is an extract from a private letter written by Mr. William Hawley Smith to the managing editor of the MAGAZINE. It is printed here with Mr. Smith's permission.)

THE claim of Mr. Kurkjian, in the May issue of the INDUSTRIAL-ARTS MAGAZINE, that schools are not over-equipped because they haven't got cook stoves, reminds me of the boy who said to his father: "Dad, I don't care a damn about shoes and stockings, but I am dying for a scarf-pin!" It is evident from what he says that he wants to equip the schools on a scarf-pin basis!

The chief danger that threatens the manual training movement comes from men like this St. Louis man. His closing words tell why this is so. He looks upon the public as a source from which limitless supplies can be drawn, and no questions asked as to results. The public will stand a whole lot of inefficiency from the schools, but there is a limit which must not be passed if the schools remain in the favor they now enjoy. And the pocketbook nerve is tremendously sensitive, so much so that if it is impinged upon too harshly it will react in a way that will

Normal School and hired a graduate to expend the money for an outfit, and come and take charge of the school. The first thing the fellow did was to turn up his nose at the "paltry \$1,500" which he said was a bagatelle so far as buying an outfit was concerned! He said he must have twice as much at least, and that would be only a starter! So the original donor doubled his subscription and with this an outfit was bought. One of the machines was an expensive band-saw, of the latest type! There were also lathes galore. The fellow started in with the demand that *all* the pupils in the high school should take the Manual Training work. He was no good as a teacher, and the result was that at the end of the first year the whole thing was abandoned. The poor old bachelor was well nigh broken-hearted over the failure!

You see, these fellows who must have a perfect equipment made up of the finest and best of everything before they can turn a wheel, beget this same spirit in their pupils! The boys and girls they train can do nothing unless they have the very best of everything whenever they are asked to do anything. The other day I saw a boy walk clear across a large room to saw off a bit of board on a circular saw, when a hand-saw lay on his bench with which he could have cut the piece with a dozen strokes. But he didn't want to do it that way and his teacher didn't know enough of the practical affairs of life to make him

do it! And this St. Louis man would have approved of the way the boy cut the board. I know it!

But we must be patient. Rome was not built in a day, nor will Vocational Education come to its own in a few minutes. But it will come, give it time. Let's never forget that, and so quietly keep on doing what will help to bring about such a result.

William Hawley Smith.

SCHOOL CRAFTS CLUB DINNER.

THE thirteenth annual dinner of the School Craft Club of New York was held at the Broadway Central Hotel on Saturday, May 8th.

Mr. Greenberg, the president of the club, was toastmaster, and the guests included the former president of the club; Dr. James P. Haney, Director of Art in New York High Schools and the founder of the club; Professor William Noyes of Columbia University; Arthur W. Richards of the Ethical Culture School; Albert W. Garritt, Assistant Director of Manual Training in New York; Ernest B. Kent, Director of Manual Training in Jersey City; William Vroom of the New York Schools and Fred P. Reagle, Supervisor of Manual Art in Montclair, N. J.

Mr. Reagle, the first speaker, made a plea for more uniform courses of study. He said that while he realized that different localities demanded different methods and different ideals, he felt that it would be a good thing for all concerned if the fundamental principles taught throughout the country were essentially the same.

Messrs. Kent, Garritt and Richards spoke of the larger interest of the club, the influence it was having in shaping the manual training work in this section of the country, and of what the club had done to advance the professional interest of the members of the club. Mr. Richards, particularly, appealed to the members of the club to aim to build upon a better professional standing as teachers of manual training. He also urged the club to make every effort to unite the manual training clubs throughout the country into a large national organization to the end that the work could be organized and established on a broader and sounder professional basis.

Mention was made of the report and discussion at the Eastern Art and Manual Training Teachers' Association Convention, held at Buffalo, N. Y., recently and the effect that these meetings were having upon the manual training work of the Eastern states. Particular attention was called to the report of Mr. McKinney on "The Present Status of the Manual Training Teacher."

Professor Noyes made a plea for more time for manual training work and for the introduction of work in a number of materials in preference to one. Back in 1880, he said, when shop work was first being introduced, from one-third to one-half of the school time was given to this work, but that today in many cities, but one hour is devoted to such work. Professor Noyes said that details were now being worked out at Teachers College, Columbia University, so that the manual training teacher graduating from there in the future, would have to take all the courses in metalworking, such as forging, foundry and sheetmetal work, leather, cement, etc., as well as the courses in woodworking and drawing. Professor Noyes believes, as do many of the manual training authorities of the country, that the future hope of the pre-vocational training lies in the shops of the elementary schools.

Dr. Haney spoke in a reminiscent way of the contributions of each of the presidents to the growing and continuing successes of the club, and drew a laugh from the members by referring to them all as his children. He then entertained the members by drawing some delightful sketches of famous spots in England that he had visited.

A very successful meeting was drawn to a close by a short business meeting, at which Charles W. Lebley of the Stuyvesant High School, New York, was elected president for the year 1915-16.

Wm. A. Carter.

THE EDUCATIONAL CONFERENCE OF THE UNIVERSITY OF CHICAGO.

THE 27TH EDUCATIONAL CONFERENCE OF INSTITUTIONS RELATED TO THE UNIVERSITY OF CHICAGO was held on April 16. The general topic of the meeting was arranged by Miss Irene Warren and took up the various aspects of the relation of the organized library to the school.

Prof. Wm. G. Whitford in discussing art teaching said in part: "The value of an organized library in connection with the teaching of art subjects has been too long ignored. It seems to be a prevailing condition that the private schools have fairly comprehensive technical libraries, while the public schools have very poorly organized and meager ones.

"The fallacy of placing modern and elaborate school equipment such as shops, laboratories, gymnasiums, swimming pools and recreation quarters as items of first importance for consideration in the making of a school budget has forced the library into a minor and insignificant place. The lack of funds which results from this practice reacts against the library and tends to keep it down to a low standard.

"Statistics show that the fund available in the average school for the purchase of books and library maintenance is so small in proportion to the other expenses that a comparison is startling. This condition is especially true of the art courses where the usefulness of books and illustrative material is of maximum importance in effective instruction. An efficient library is an indispensable element in the teaching of art and the development of the student. It is an inexpensive element when the final results are considered in the finishing school and upon entering a life work.

"Preliminary training is necessary to appreciate and interpret works of art. It requires careful training on the part of the instructor who must be able to stimulate interest, direct the study of works of art, and assist in the acquirement of an appreciation of art. The results from such a system have been extremely satisfactory not only in interesting the students in good illustrative material, but in raising the standard of the teacher's knowledge and efficiency."

Mr. E. L. Valentine spoke on "The High-School Library in Its Relation to the Teaching of Industrial Art"; Miss Agnes Doyle on "The High-School Library and the Fine Arts"; Miss Helen Carson on "The Care of Material for Visual Instruction"; Mr. Henry E. Legler on "The Public Library in Its Relation to the Fine and Industrial Arts."

In the Department of Manual Arts, Mr. John F. Bobbitt spoke on "Organized Library Work and Industrial Education"; Mr. Geo. B. Utley on "The Library in Relation to Manual Art Courses in the High School"; Mr. Samuel H. Ranck on "Vocational Guidance Thru the Library."

WISCONSIN STATE CONFERENCE.

To one accustomed to attending industrial education conventions, attendance at the Annual Institute and Conference of the Wisconsin Industrial and Continuation Schools is a refreshing experience. There is a total absence of propaganda for legislation, controversies over cultural and vocational education, unit and dual control, etc., etc., etc.

Approximately 200 teachers met in Oshkosh, May 17, 18 and 19, to discuss the problems of the teacher in the industrial school. Warren E. Hicks, State Assistant for Industrial Education, very carefully planned the program to insure each teacher's getting the greatest possible assistance from the meeting. Each group of teachers had worked out lessons and courses for specific groups of pupils and these lessons and courses furnished the basis for discussion in the three days of conferences.

NOW, ARE THERE ANY QUESTIONS?

Readers are urged to ask questions concerning the Industrial Arts. The editors will reply to those questions which they feel that they can answer, and to other questions, they will obtain replies from persons who can answer them authoritatively.

Questions should be addressed to THE EDITORS.

Time in Manual Training.

Wisconsin. Q:—1. How much time should be spent on demonstrations in a class which meets for an hour once a week? 2. At what time should pupils be allowed to choose their own projects?

A:—1. Not more than ten minutes upon *chief points of interest to all*. Such class work must be most carefully prepared to save time and accomplish purpose.

2. As soon as possible after they are well grounded in use of tools and principal construction details. It is well to arrange a course by groups. In the early groups projects may be fixed, later they may be modified in design and construction by individuals and finally they may be inaugurated or individually designed by pupils and approved by teacher.—F. D. C.

Books on Furniture.

Spring Grove, Minn. Q:—1. Where can I get some good books on the history of furniture? 2. What firm sells Paul Hasluck's "Wood Finishing"?

A:—1. F. Litchfield's *Illustrated History of Furniture*. \$6. American Architect, New York City; Esther Singleton's *Furniture of Our Forefathers*. \$5.

2. David McKay, Philadelphia.

Filing Saws.

Chicago, Ill. Q:—I should like to know why it is that all manual training books (that I have seen) tell you to point the file toward the toe of the saw in filing a cross-cut saw, while every mechanic who does any saw filing, tells you to point it toward the heel? Which is correct?

A:—The best authorities in manual training do not advise the pointing of the file toward the heel of the saw. Mr. William Miller, saw expert of the Simonds Manufacturing Company, Fitchburg, Mass., writes us: "The practice in filing a hand saw in the factory is to point the file toward the toe or point of the saw. As the cutting or leaving of the wood fiber is done with the point and front of the tooth on the forward thrust of the saw, the sharpening should be done here. This is best accomplished by pointing the file toward the toe or point. Another reason is that a better angle or bevel is obtained on the front of the tooth."

Unit Courses.

Wisconsin. Q:—Are unit courses of one or two years' length in the high school, such as a two-year course in patternmaking, architectural drawing, or cabinet and furniture construction, better than a four-year manual training course of the familiar furniture, turning, patternmaking, forging and drawing type?

A:—Answer depends upon purpose of courses and students taking them. Doubtless for those who are preparing for special industrial work and who desire to avail themselves of the advantages of a high school during their period of special industrial preparation, the special one, two or three-year industrial course in which considerable time is devoted to industrial training work is preferable to the regular high school course including manual arts work.—F. D. C.

Woodworking Machines.

Iowa. Q:—Which woodworking machines do you consider the most important or essential to a school shop? Name these and others in order of their importance.

A:—1, Circular saw. 2, Edger with bed wide enough to dress eight inch surfaces. 3, Mortising machine. 4,

Pony, double roll planer. 5, Band saw. (No consideration is given to lathes. Secure enough to rotate four sections in woodworking class.)—F. D. C.

Textbooks.

Jackson, Miss. Q:—Will you kindly give me: (1) textbooks that will be helpful for millinery, dressmaking, sewing in the high school? (2) Is there a text for high school drafting? (3) Kindly send me addresses of the two magazines "The Milliner" and "The Illustrated Milliner."

A:—1 and 2. Yusuf's *The Art of Millinery*, The Millinery Trade Publishing Co., New York, \$2.00. C. Hill's *Millinery, Theoretical and Practical*, J. B. Lippincott Co., Philadelphia. \$0.75. *Practical Millinery Lessons*, Millinery Trade Publishing Co. \$1.00. Cooke and Kidd's *Dressmaking in the Schools*, Longmans, Green & Co., New York. \$1.35. Fales' *Textbook on Dressmaking*, Chas. Scribner's Sons, New York. Wakeman & Heller's *Scientific Sewing and Garment Cutting*, Silver, Burdett & Co., New York. Woolman's *Sewing Course*, The Macmillan Co., New York. Blairs' *Model Sewing and Garment Drafting*, Webb Publishing Co., St. Paul, Minn.

3. "The Milliner" is published monthly by the Milliner Company, 215 S. Market St., Chicago. \$2.00. "The Illustrated Milliner" is issued by the Illustrated Milliner Co., 606 Broadway, New York. \$4.00.

Art Books.

Los Angeles, Cal. Q:—Can you tell me where I can get Sheraton's works, "The Cabinet Maker and Upholsterer's Drawing Books," "The Dictionary" and "The Encyclopedia"?—R. F. S.

A:—G. Broes Van Dort Co., 20 W. Jackson Boulevard, Chicago, or the Bruno Hessling Co., New York, N. Y.

Pottery Firing.

Hancock, Mich. Q:—1. Can you tell me where I can purchase cones for clay firing? Also, where I can get explicit directions for their use? 2. Where can I purchase prepared glazes? 3. Do you think it possible to fire clay in an ordinary china kiln?

A:—Lewis Institute, Pottery Department, Chicago, Ill.; Drackenfeld & Co., Murray Street, New York City; L. Reusche & Co., 12 Barclay Street, New York, N. Y.

Cones for indicating the "firing point" of pottery are generally placed near the middle of the kiln where they can be seen. They are graded in hardness to bend and collapse at the exact temperature required for firing the composition most generally used. Two cones are generally used but Cox recommends that three be used, one just below, another just above, the correct temperature. In Cox's "Pottery," (Macmillan, New York, \$1.25) full directions for using cones and a reference list for their applications to different materials will be found.

2. Prepared glazes may be had from the firms mentioned above. Also from: M. M. Mason, 218 West 59th St., New York City, N. Y.; Warren-O'Hara Color Co., 132 East 19th St., New York.

3. No, the ordinary china kiln is not heavy enough for extended use as a pottery kiln.

MISS PEARL L. BAILEY, Supervisor of Domestic Science in the Saint Paul Public Schools, will resign at the close of the present school year to prepare for her approaching marriage. Miss Bailey has been with the department for over twelve years and will be missed by all her many friends.